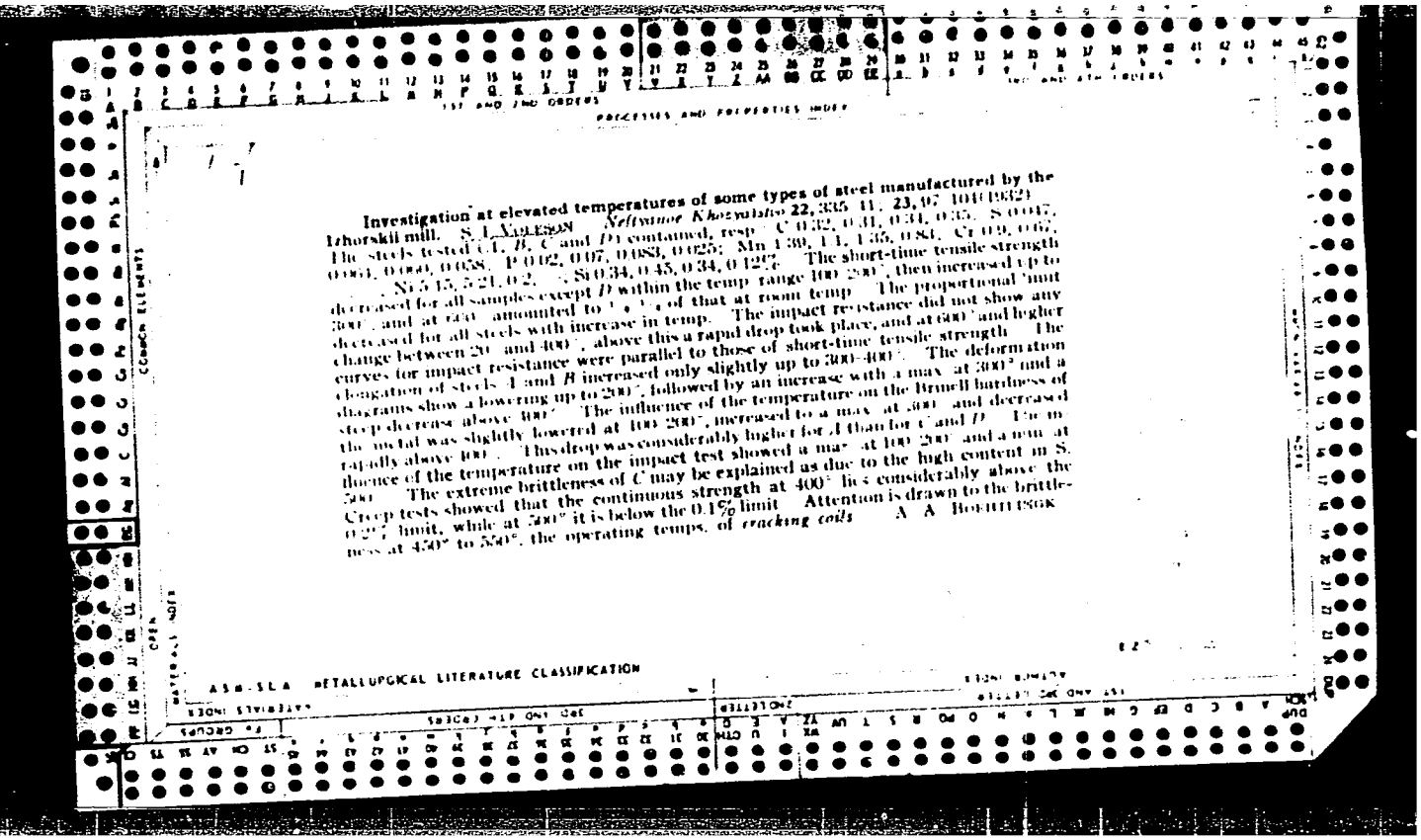
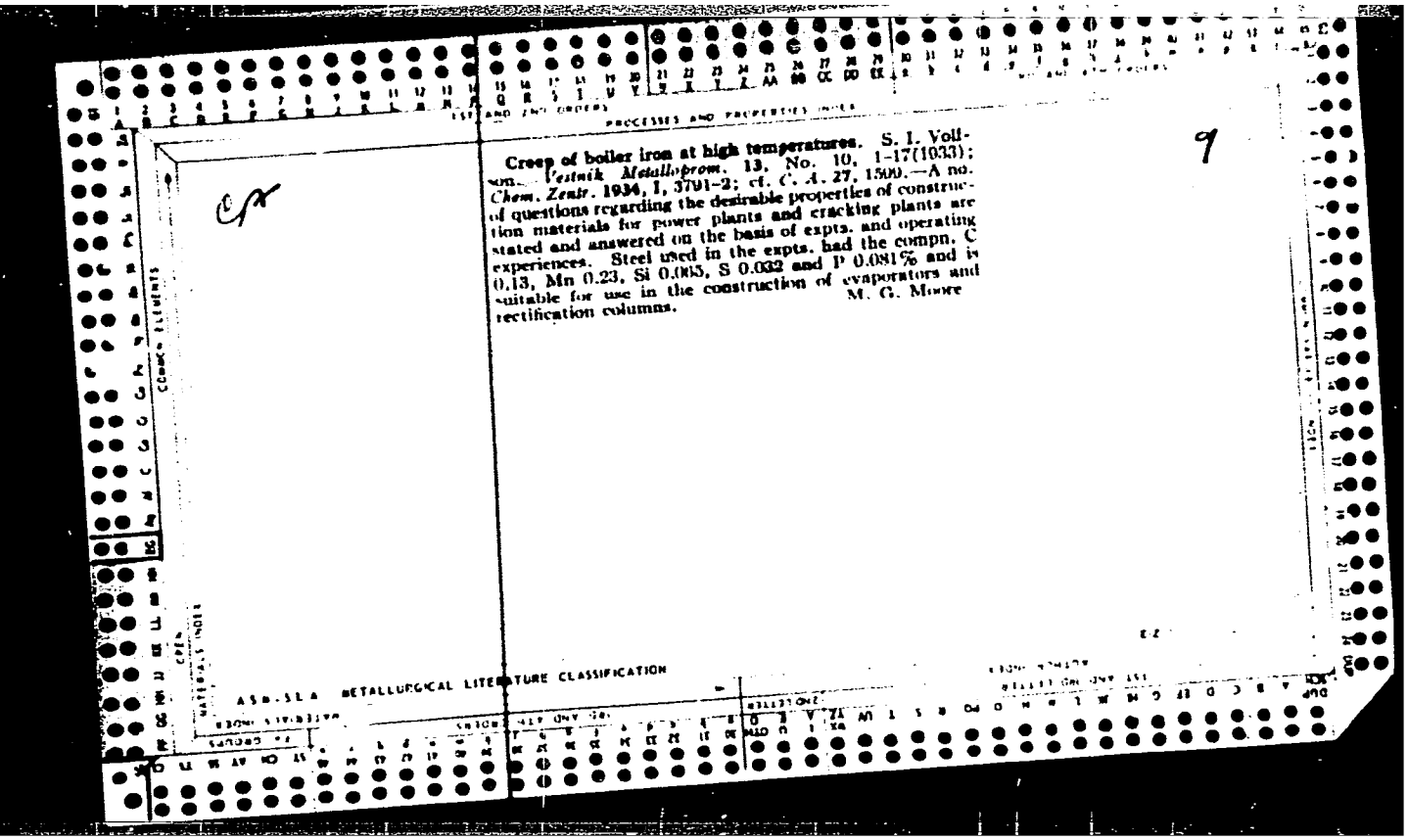
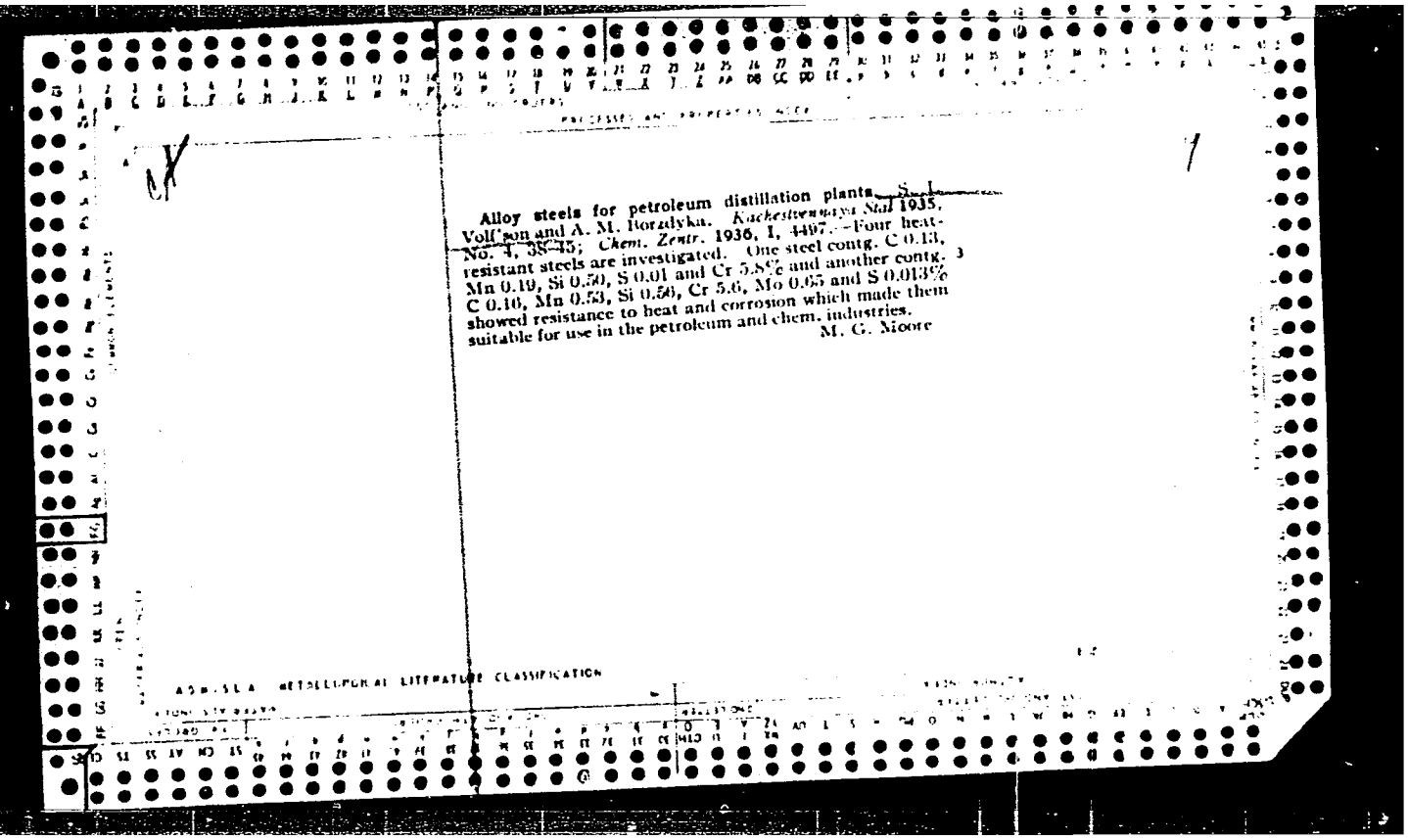


Investigation at elevated temperatures of some types of steel manufactured by the Izhorskii mill. S. I. Nikolaev *Sbornik Khozyaistvo* 22, 335-11; 23, 97-104 (1932). The steels tested (*A*, *B*, *C* and *D*) contained, resp. C 0.32, 0.31, 0.34, 0.35; S 0.047, 0.066, 0.044, 0.058; P 0.02, 0.07, 0.083, 0.025; Mn 1.39, 1.1, 1.35, 0.81; Cr 0.9, 0.67, Ni 5.15, 5.21, 0.2, —; Si 0.34, 0.45, 0.34, 0.12%. The short-time tensile strength decreased for all samples except *D* within the temp. range 100-200°, then increased up to 300°, and at 400° amounted to [illegible] of that at room temp. The proportional limit decreased for all steels with increase in temp. The impact resistance did not show any change between 20° and 400°, above this a rapid drop took place, and at 600° and higher curves for impact resistance were parallel to those of short-time tensile strength. The elongation of steels *A* and *B* increased only slightly up to 300-400°. The deformation diagrams show a lowering up to 200°, followed by an increase with a max. at 300° and a steep decrease above 400°. The influence of the temperature on the Brinell hardness of the metal was slightly lowered at 100-200°, increased to a max. at 300° and decreased rapidly above 400°. This drop was considerably higher for *A* than for *C* and *D*. The influence of the temperature on the impact test showed a max. at 100-200° and a min. at 500°. The extreme brittleness of *C* may be explained as due to the high content in S. Creep tests showed that the continuous strength at 400° lies considerably above the 0.2% limit, while at 300° it is below the 0.1% limit. Attention is drawn to the brittleness at 450° to 550°, the operating temps. of *cracking coils*. A. A. Bochvar.

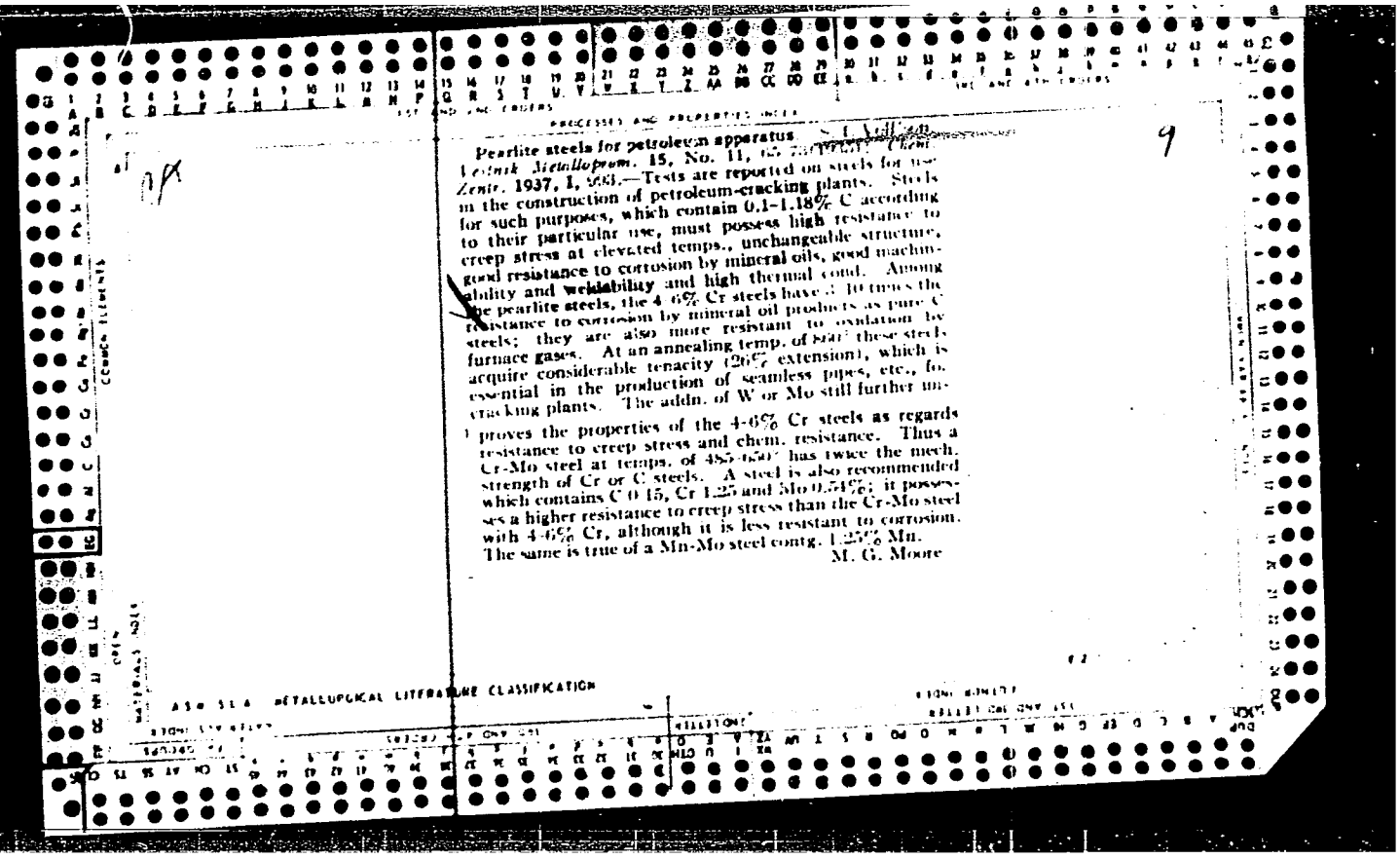


Creep of boiler iron at high temperatures. S. I. Vol'fson. *Vestnik Metalloprom.* 13, No. 10, 1–17(1933); *Chem. Zentr.* 1934, I, 3701–2; cf. *C. A.* 27, 1500.—A no. of questions regarding the desirable properties of construction materials for power plants and cracking plants are stated and answered on the basis of expts. and operating experiences. Steel used in the expts. had the compn. C 0.13, Mn 0.23, Si 0.085, S 0.032 and P 0.081% and is suitable for use in the construction of evaporators and rectification columns.

M. G. Moore



Alloy steels for petroleum distillation plants. S. Vol'fson and A. M. Borzdyka. *Kachestvennaya Stal* 1935, No. 1, 38–45; *Chem. Zentr.* 1936, I, 4497.—Four heat-resistant steels are investigated. One steel contg. C 0.13, Mn 0.19, Si 0.50, S 0.01 and Cr 5.8% and another contg. C 0.10, Mn 0.53, Si 0.50, Cr 5.6, Mo 0.65 and S 0.013% showed resistance to heat and corrosion which made them suitable for use in the petroleum and chem. industries.
M. G. Moore

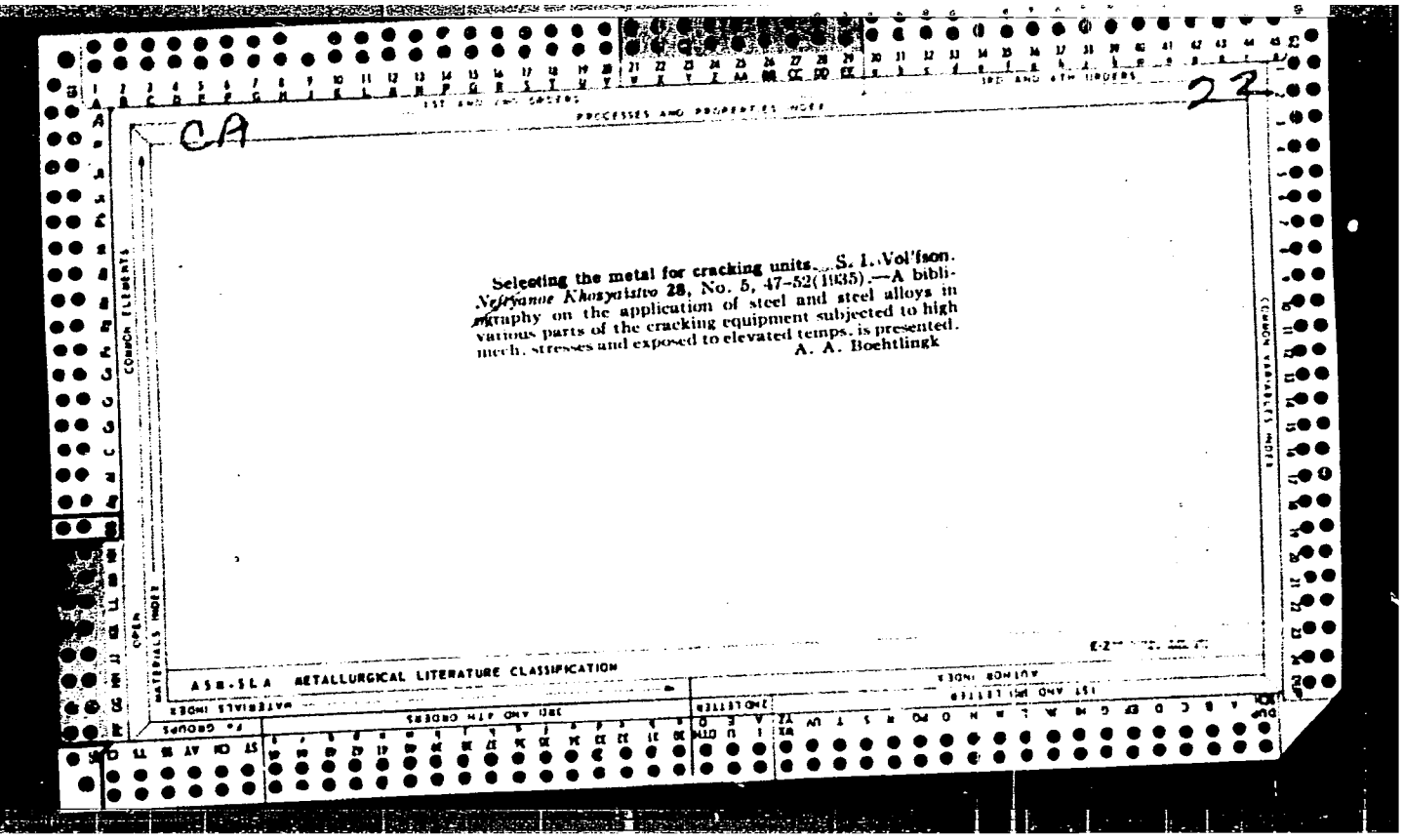


Pearlite steels *for* petroleum apparatus

Vestnik Metallopromyshlennosti. 15, No. 11, [illegible]. *Chem. Zentr.* 1937, I, 3661.—Tests are reported on steels for use in the construction of petroleum-cracking plants. Steels for such purposes, which contain 0.1–1.18% C according to their particular use, must possess high resistance to creep stress at elevated temps., unchangeable structure, good resistance to corrosion by mineral oils, good machinability and weldability and high thermal cond. Among the pearlite steels, the 4–6% Cr steels have 5–10 times the resistance to corrosion by mineral oil products as pure C steels; they are also more resistant to oxidation by furnace gases. At an annealing temp. of 850° these steels acquire considerable tenacity (26% extension), which is essential in the production of seamless pipes, etc., for cracking plants. The addn. of W or Mo still further improves the properties of the 4–6% Cr steels as regards resistance to creep stress and chem. resistance. Thus a Cr-Mo steel at temps. of 485–550° has twice the mech. strength of Cr or C steels. A steel is also recommended which contains C 0.15, Cr 1.25 and Mo 0.54%; it possesses a higher resistance to creep stress than the Cr-Mo steel with 4–6% Cr, although it is less resistant to corrosion. The same is true of a Mn-Mo steel contg. 1.25% Mn.

M. G. Moore

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

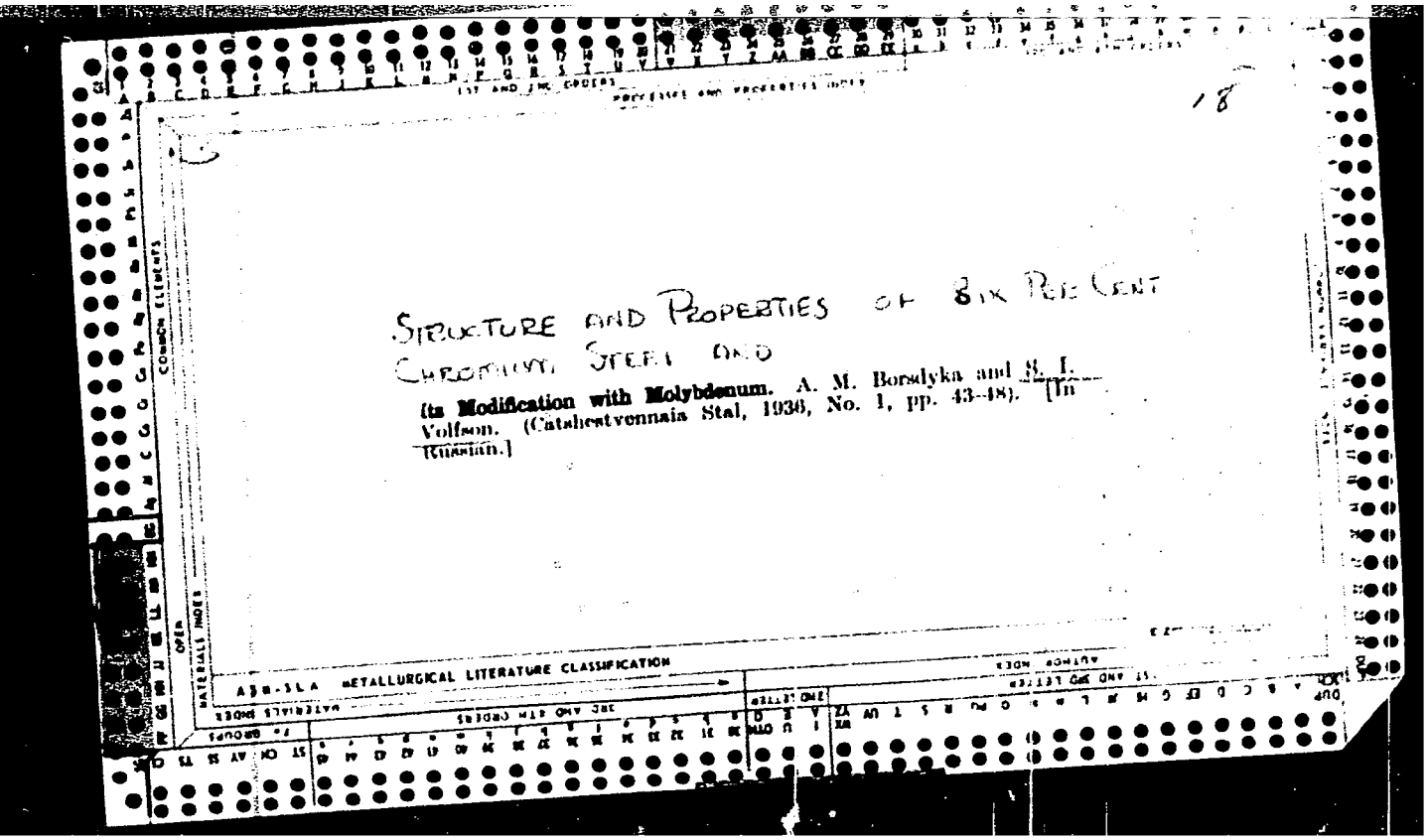


CA

22

Selecting the metal for cracking units. S. I. Vol'fson. *Neftyanoe Khozyaistvo* **28**, No. 5, 47–52(1935).—A bibliography on the application of steel and steel alloys in various parts of the cracking equipment subjected to high mech. stresses and exposed to elevated temps. is presented.
A. A. Boehtlingk

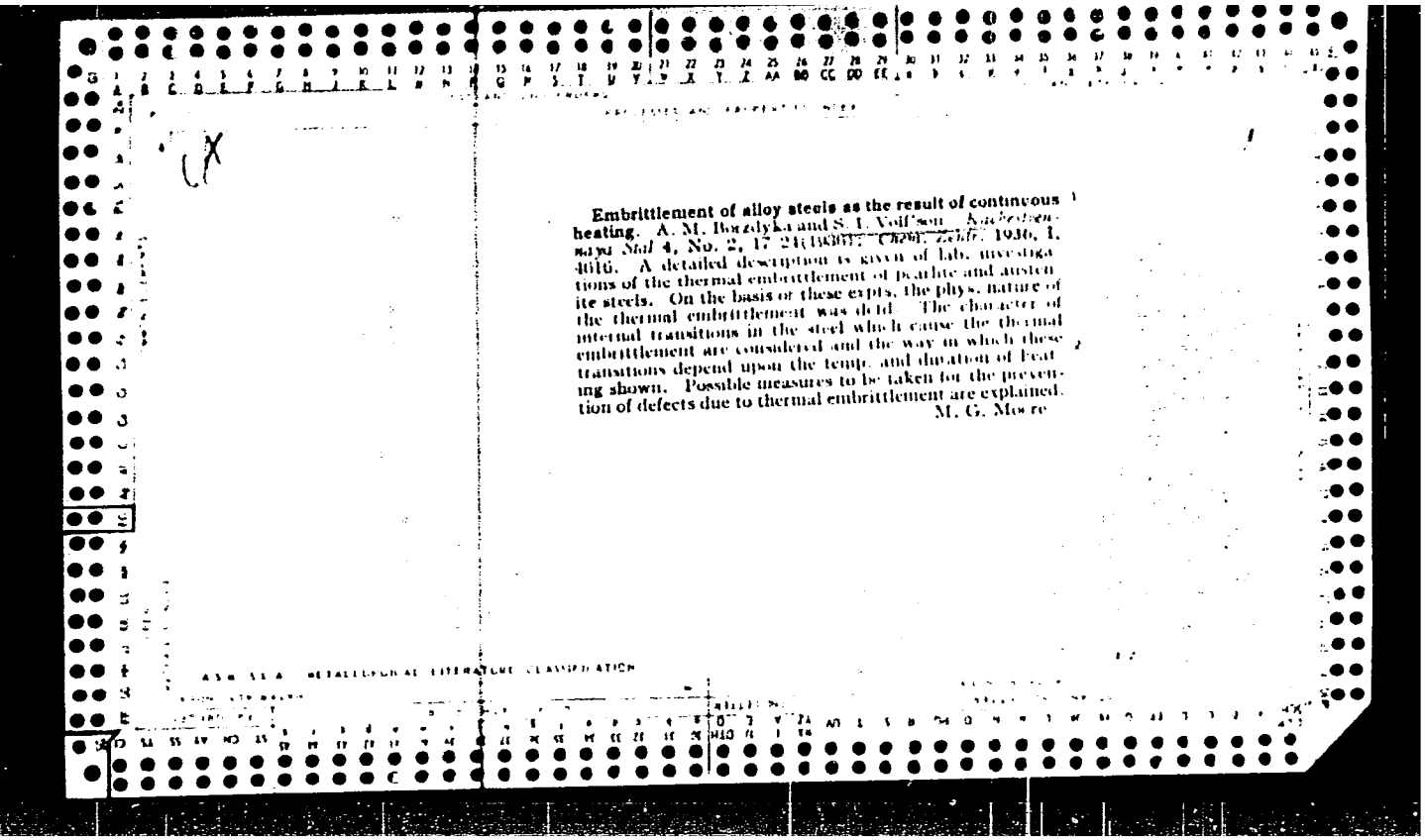
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



STRUCTURE AND PROPERTIES OF SIX PER CENT CHROMIUM STEEL AND

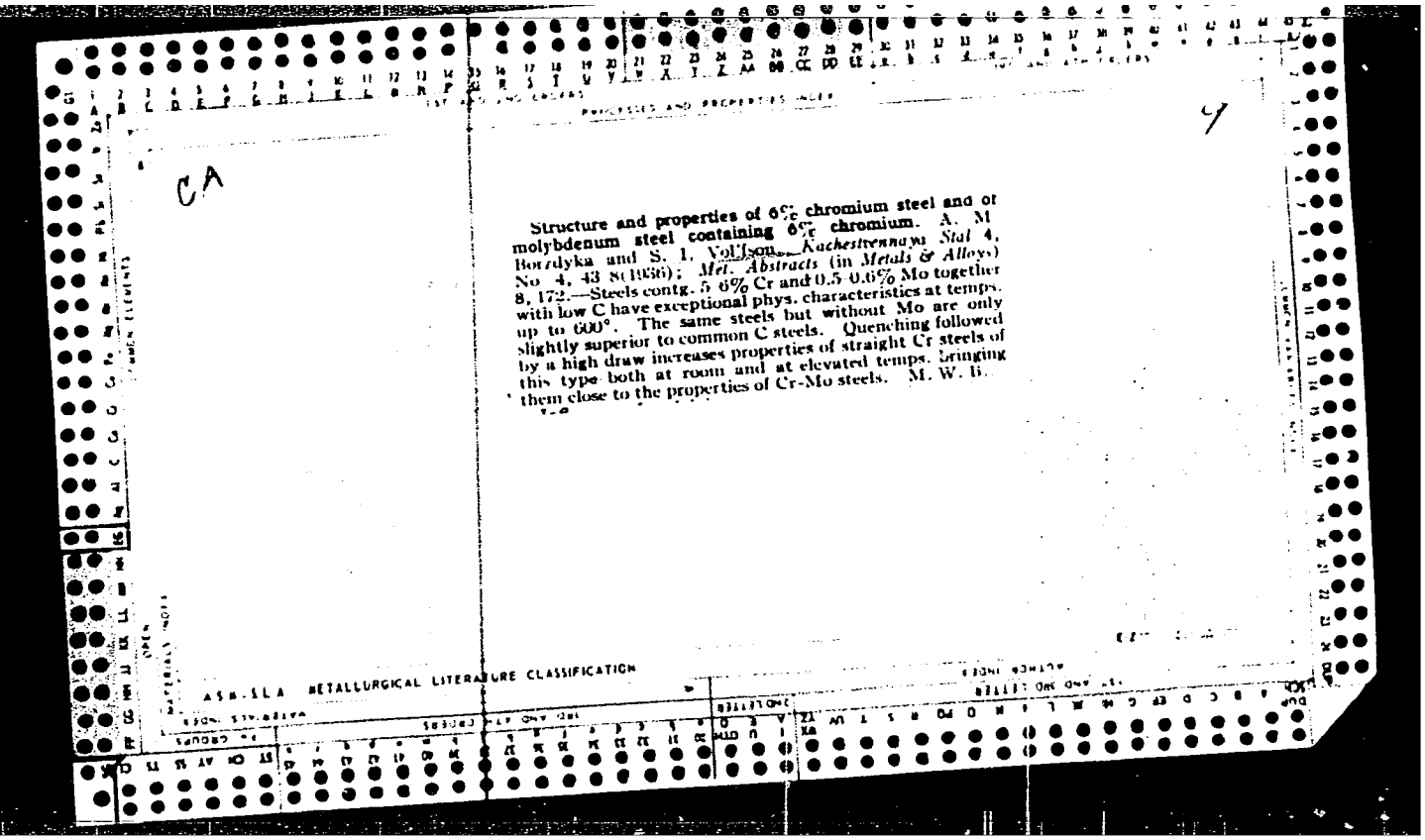
(its Modification with Molybdenum. A. M. Borsdyka and S. I. Volfson. (Catshestvennaia Stal, 1936, No. 1, pp. 43-48). [In Russian.]

METALLURGICAL LITERATURE CLASSIFICATION



Embrittlement of alloy steels as the result of continuous heating. A. M. Borzdyka and S. I. Volf'son. *Kachestvennaya Stal* 4, No. 2, 17-24(1934). *Chem. Zentr.* 1936, I, 4016. A detailed description is given of lab. investigations of the thermal embrittlement of pearlite and austenite steels. On the basis of these expts. the phys. nature of the thermal embrittlement was detd. The character of internal transitions in the steel which cause the thermal embrittlement are considered and the way in which these transitions depend upon the temp. and duration of heating shown. Possible measures to be taken for the prevention of defects due to thermal embrittlement are explained.

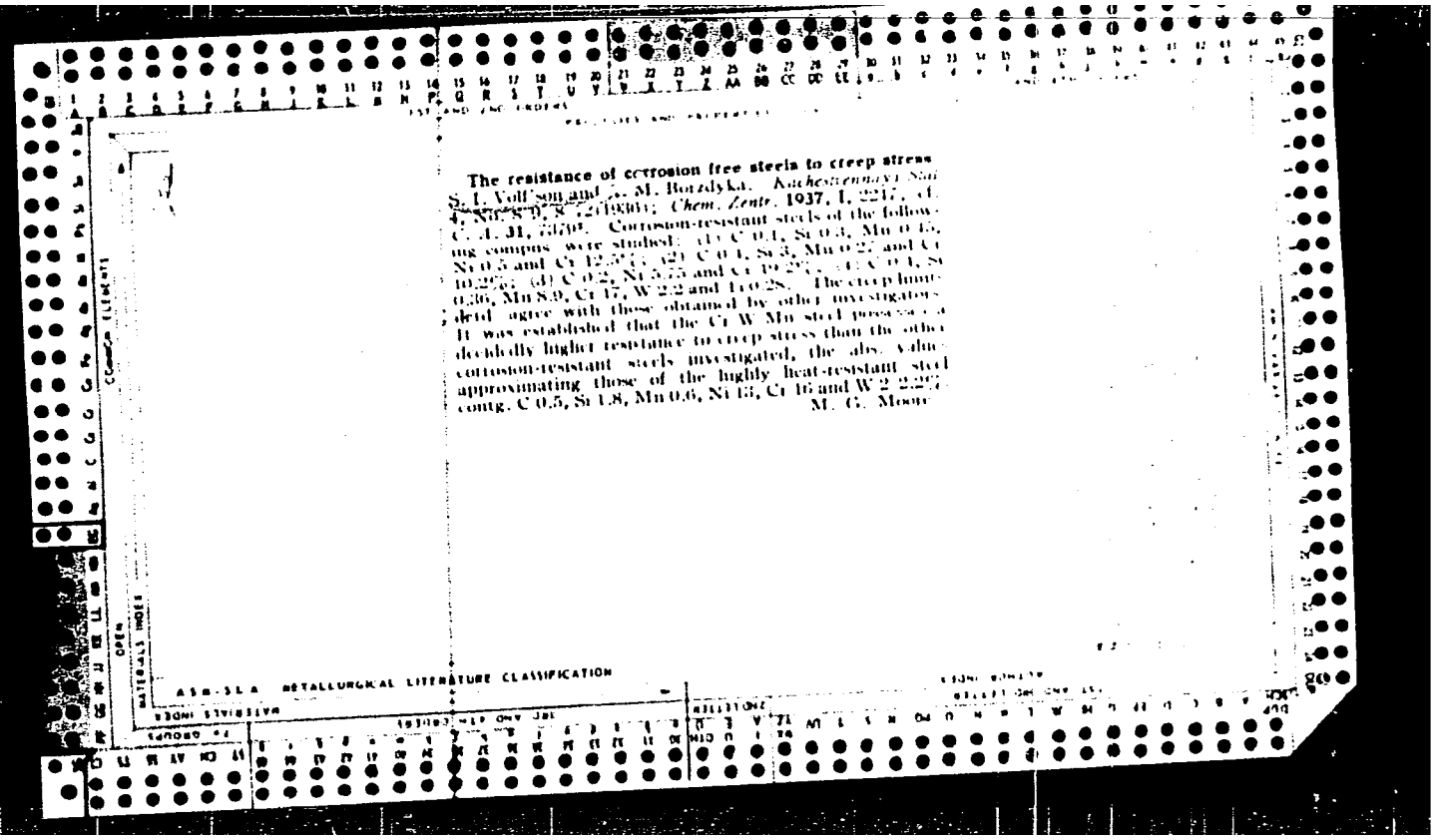
M. G. Moore



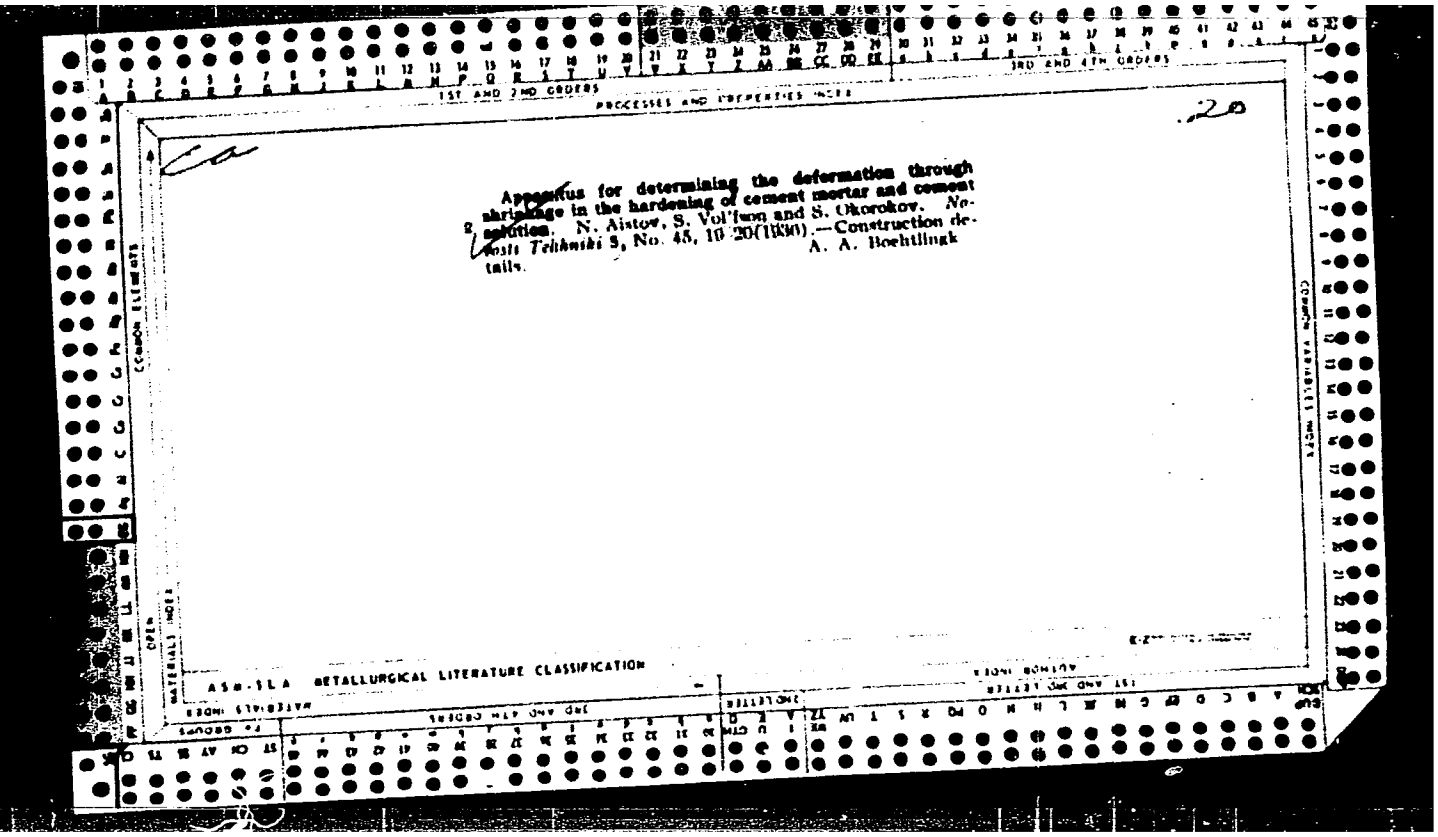
CA

Structure and properties of 6% chromium steel and of molybdenum steel containing 6% chromium. A. M. Borzdyka and S. I. Vol'son. *Kachestvennaya Stal* 4, No. 4, 43–8 (1936); *Met. Abstracts* (in *Metals & Alloys*) 8, 172.—Steels contg. 5–6% Cr and 0.5–0.6% Mo together with low C have exceptional phys. characteristics at temps. up to 600°. The same steels but without Mo are only slightly superior to common C steels. Quenching followed by a high draw increases properties of straight Cr steels of this type both at room and at elevated temps. bringing them close to the properties of Cr-Mo steels. M. W. B.

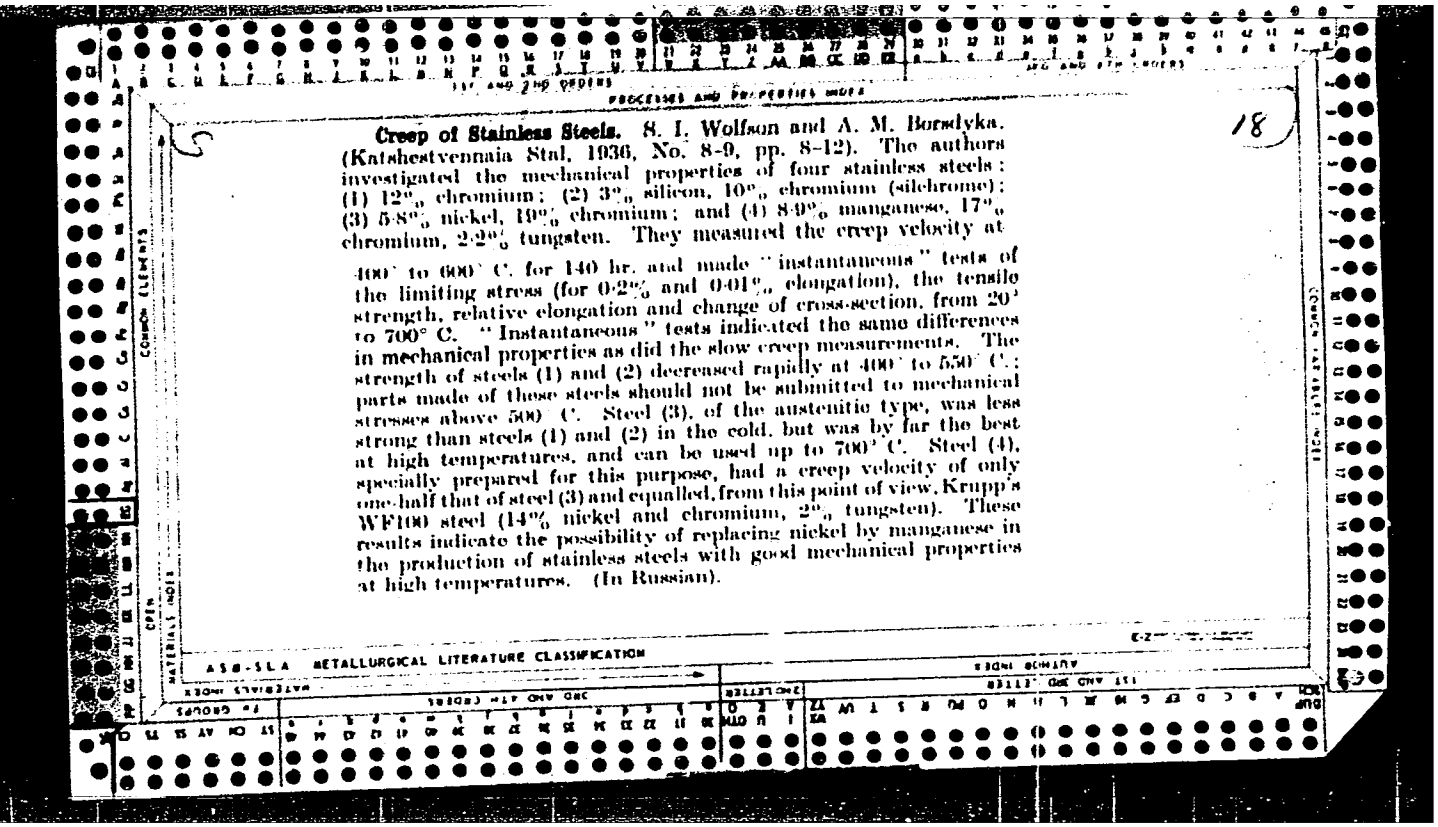
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



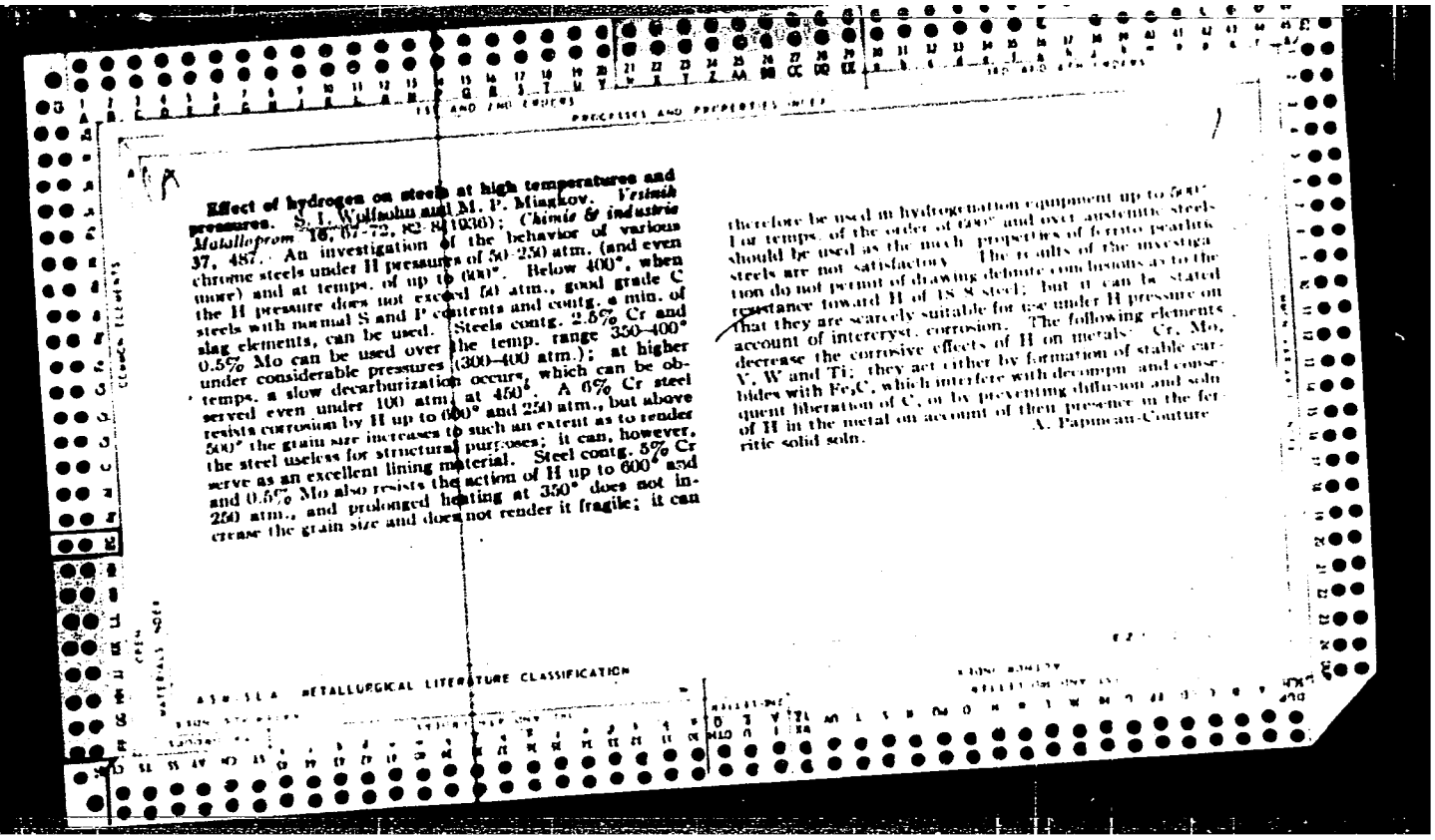
The resistance of corrosion free steels to creep stress
S. I. Vol'fson and ... M. Bozdyka. *Kachestvennaya Stal*
4, No. 5, 8 (1936); *Chem. Zentr.* 1937, I, 2217. cf.
C. A. 31, 5670. Corrosion-resistant steels of the follow-
ing compos were studied: (1) C 0.1, Si 0.3, Mn 0.45,
Ni 0.5 and Cr 12.5%; (2) C 0.1, Si 3, Mn 0.27 and Cr
10.2%; (3) C 0.2, Ni 5.75 and Cr 19.2%; (4) C 0.1, Si
0.36, Mn 8.9, Cr 17, W 2.2 and Ti 0.28. The creep limits
did agree with those obtained by other investigators.
It was established that the Cr W Mn steel possesses a
decidedly higher resistance to creep stress than the other
corrosion-resistant steels investigated, the abs. value
approximating those of the highly heat-resistant steel
contg. C 0.5, Si 1.8, Mn 0.6, Ni 13, Cr 16 and W 2.2%.
M. G. Moore



Apparatus for determining the deformation through shrinkage in the hardening of cement mortar and cement solution. N. Aistov, S. Vol'fson and S. Okorokov. *Novosti Tekhniki* 9, No. 48, 10–20(1930).—Construction details. A. A. Boehtlingk



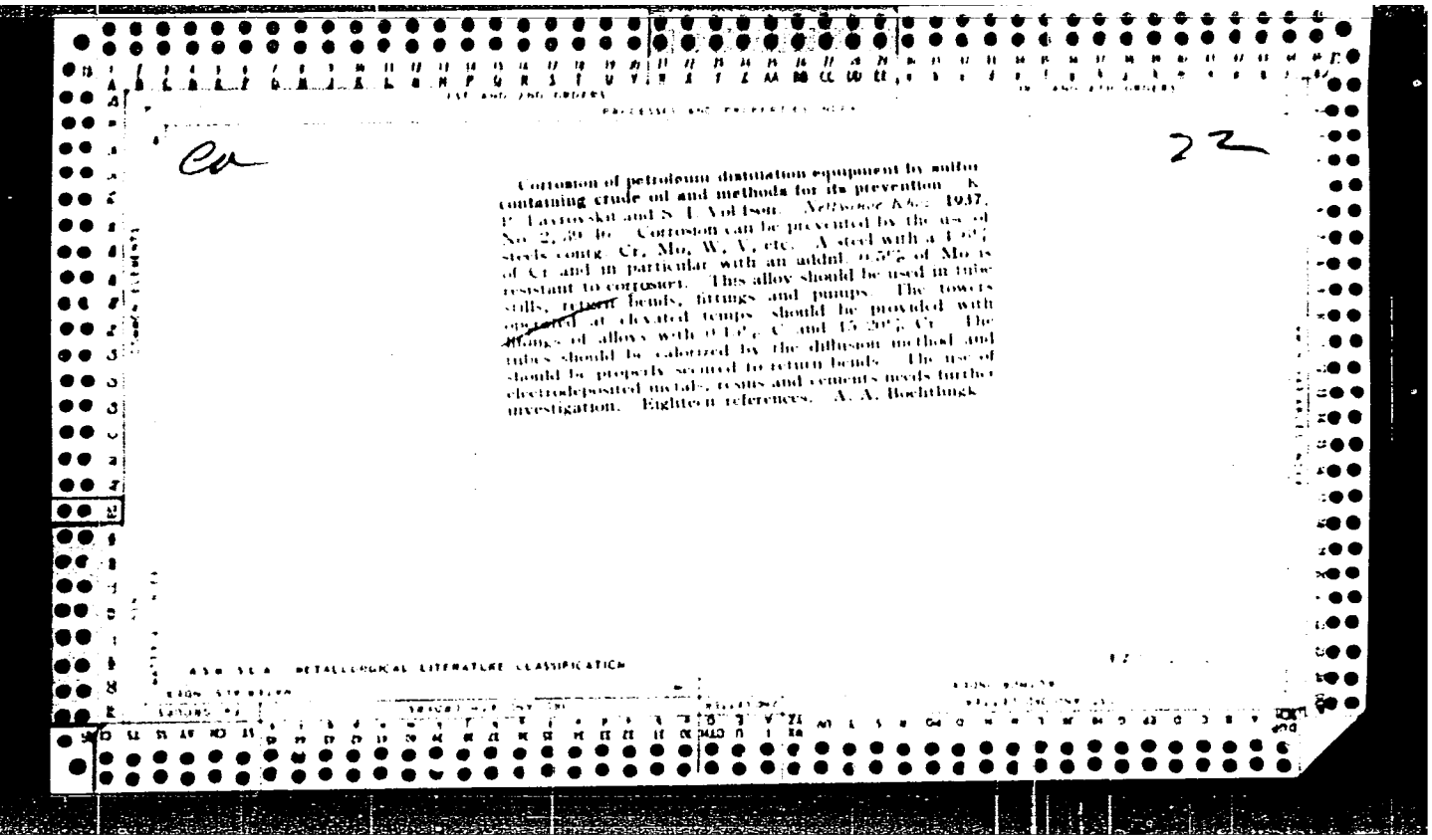
Creep of Stainless Steels. S. I. Wolfson and A. M. Borsdyka. (Katshestvennaia Stal, 1936, No. 8-9, pp. 8-12). The authors investigated the mechanical properties of four stainless steels: (1) 12% chromium; (2) 3% silicon, 10% chromium (silchrome); (3) 5·8% nickel, 19% chromium; and (4) 8·9% manganese, 17% chromium, 2·2% tungsten. They measured the creep velocity at 400° to 600° C. for 140 hr. and made "instantaneous" tests of the limiting stress (for 0·2% and 0·01% elongation), the tensile strength, relative elongation and change of cross-section, from 20° to 700° C. "Instantaneous" tests indicated the same differences in mechanical properties as did the slow creep measurements. The strength of steels (1) and (2) decreased rapidly at 400° to 550° C.; parts made of these steels should not be submitted to mechanical stresses above 500° C. Steel (3), of the austenitic type, was less strong than steels (1) and (2) in the cold, but was by far the best at high temperatures, and can be used up to 700° C. Steel (4), specially prepared for this purpose, had a creep velocity of only one-half that of steel (3) and equalled, from this point of view, Krupp's WF100 steel (14% nickel and chromium, 2% tungsten). These results indicate the possibility of replacing nickel by manganese in the production of stainless steels with good mechanical properties at high temperatures. (In Russian).



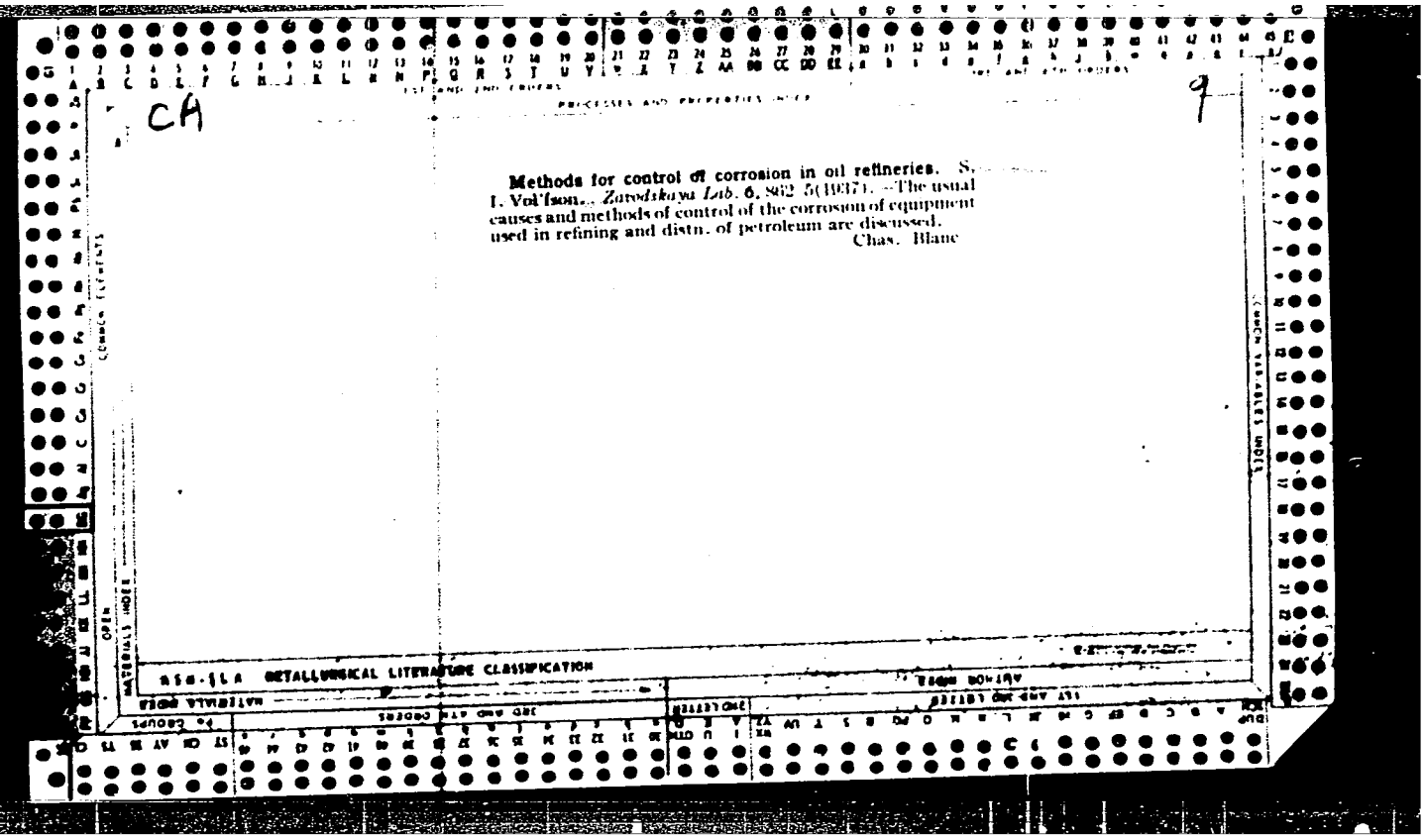
Effect of hydrogen on steels at high temperatures and pressures. S. I. Wolfkin and M. P. Miaskov. *Vestnik Metalloprom* 16, 67–72, 82–84 (1936); *Chimie & industrie* 37, 487. An investigation of the behavior of various chrome steels under H pressures of 50–250 atm. (and even more) and at temps. of up to 600°. Below 400°, when the H pressure does not exceed 50 atm., good grade C steels with normal S and P contents and contg. a min. of slag elements, can be used. Steels contg. 2.5% Cr and 0.5% Mo can be used over the temp. range 350–400° under considerable pressures (300–400 atm.); at higher temps. a slow decarburization occurs, which can be observed even under 100 atm. at 450°. A 6% Cr steel resists corrosion by H up to 600° and 250 atm., but above 500° the grain size increases to such an extent as to render the steel useless for structural purposes; it can, however, serve as an excellent lining material. Steel contg. 5% Cr and 0.5% Mo also resists the action of H up to 600° and 250 atm., and prolonged heating at 350° does not increase the grain size and does not render it fragile; it can therefore be used in hydrogenation equipment up to 600°. For temps. of the order of 450° and over austenitic steels should be used as the mech. properties of ferrite-pearlitic steels are not satisfactory. The results of the investigation do not permit of drawing definite conclusions as to the resistance toward H of 18-8 steel; but it can be stated that they are scarcely suitable for use under H pressure on account of intercryst. corrosion. The following elements decrease the corrosive effects of H on metals: Cr, Mo, V, W and Ti; they act either by formation of stable carbides with Fe_3C, which interfere with decompn. and consequent liberation of C, or by preventing diffusion and soln. of H in the metal on account of their presence in the ferritic solid soln.

A. Papineau-Couture

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



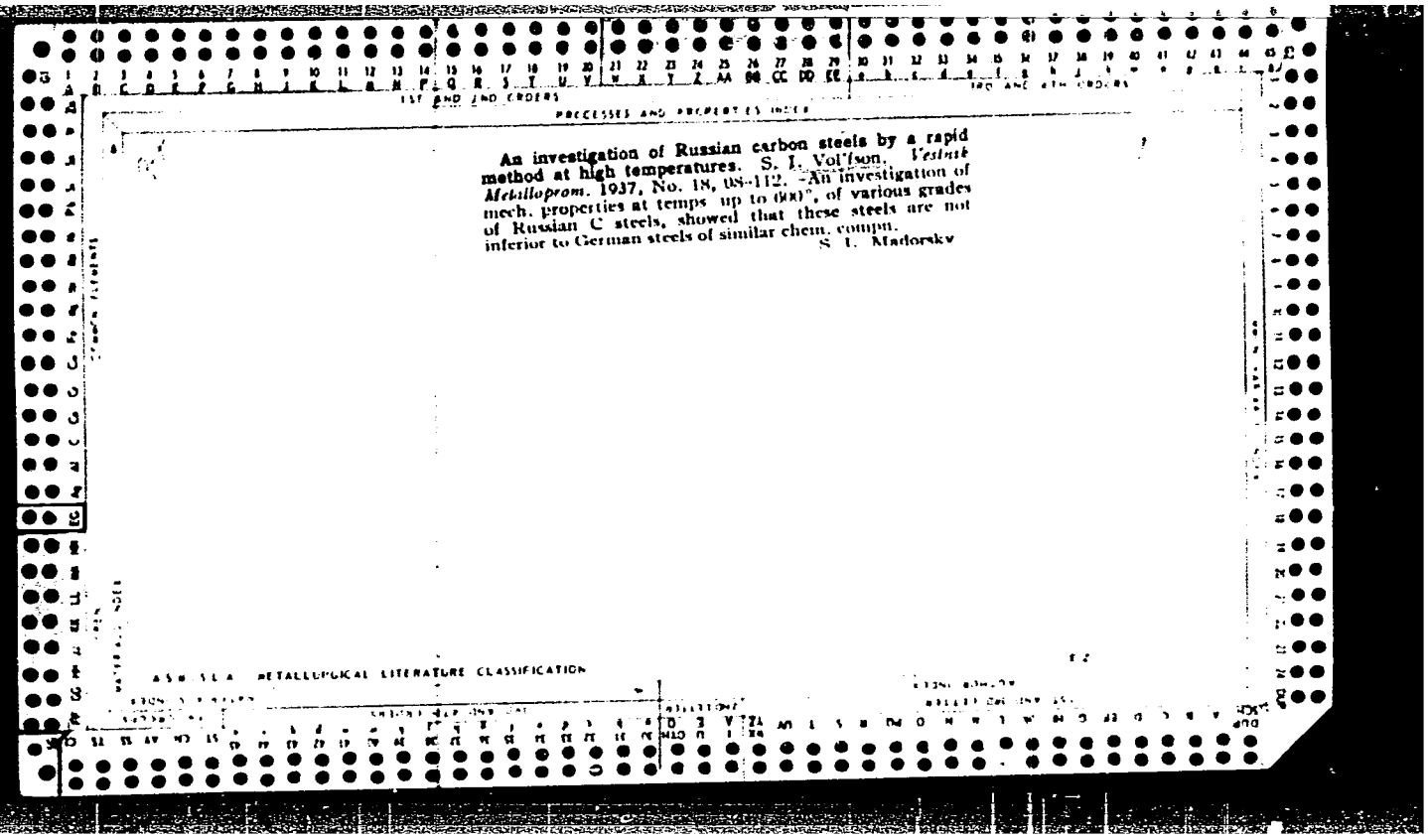
Corrosion of petroleum distillation equipment by sulfur containing crude oil and methods for its prevention. K. P. Lavrovskaĭ and S. I. Vol'fson. *Neftyanoe Khoz.* 1937, No. 2, 50 to. Corrosion can be prevented by the use of steels contg. Cr, Mo, W, V, etc. A steel with a 1.0% of Cr and in particular with an addnl. 0.5% of Mo is resistant to corrosion. This alloy should be used in tube stills, return bends, fittings and pumps. The towers operated at elevated temps. should be provided with linings of alloys with 0.1% C and 15-20% Cr. The tubes should be cohorized by the diffusion method and should be properly secured to return bends. The use of electrodeposited metals, resins and cements needs further investigation. Eighteen references. A. A. Bochtlingk



CA

9

Methods for control of corrosion in oil refineries. S. I. Vol'fson. *Zavodskaya Lab.* 6, 862–5(1937).—The usual causes and methods of control of the corrosion of equipment used in refining and distn. of petroleum are discussed.
Chas. Blanc

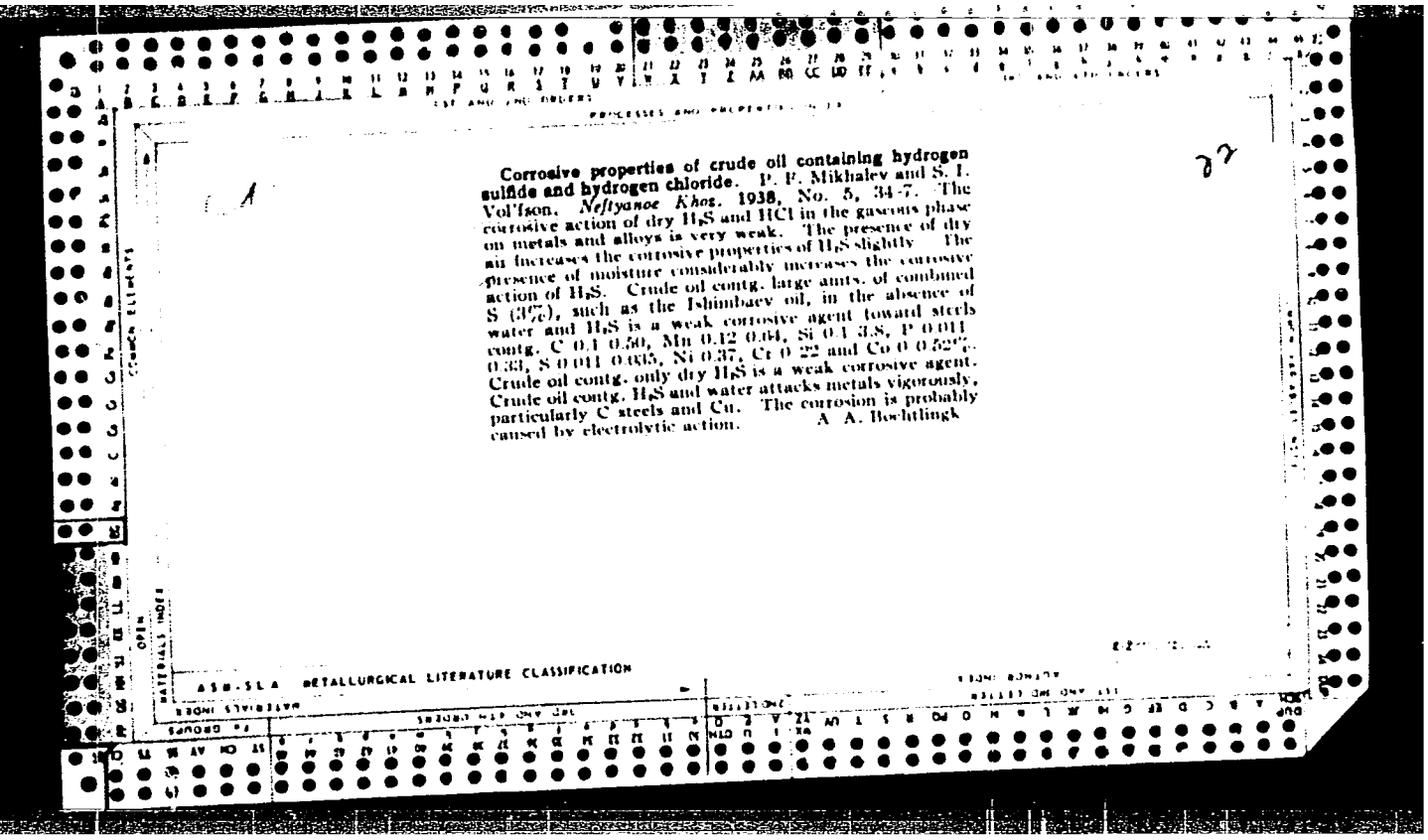


PROCESSES AND PROPERTIES INDEX

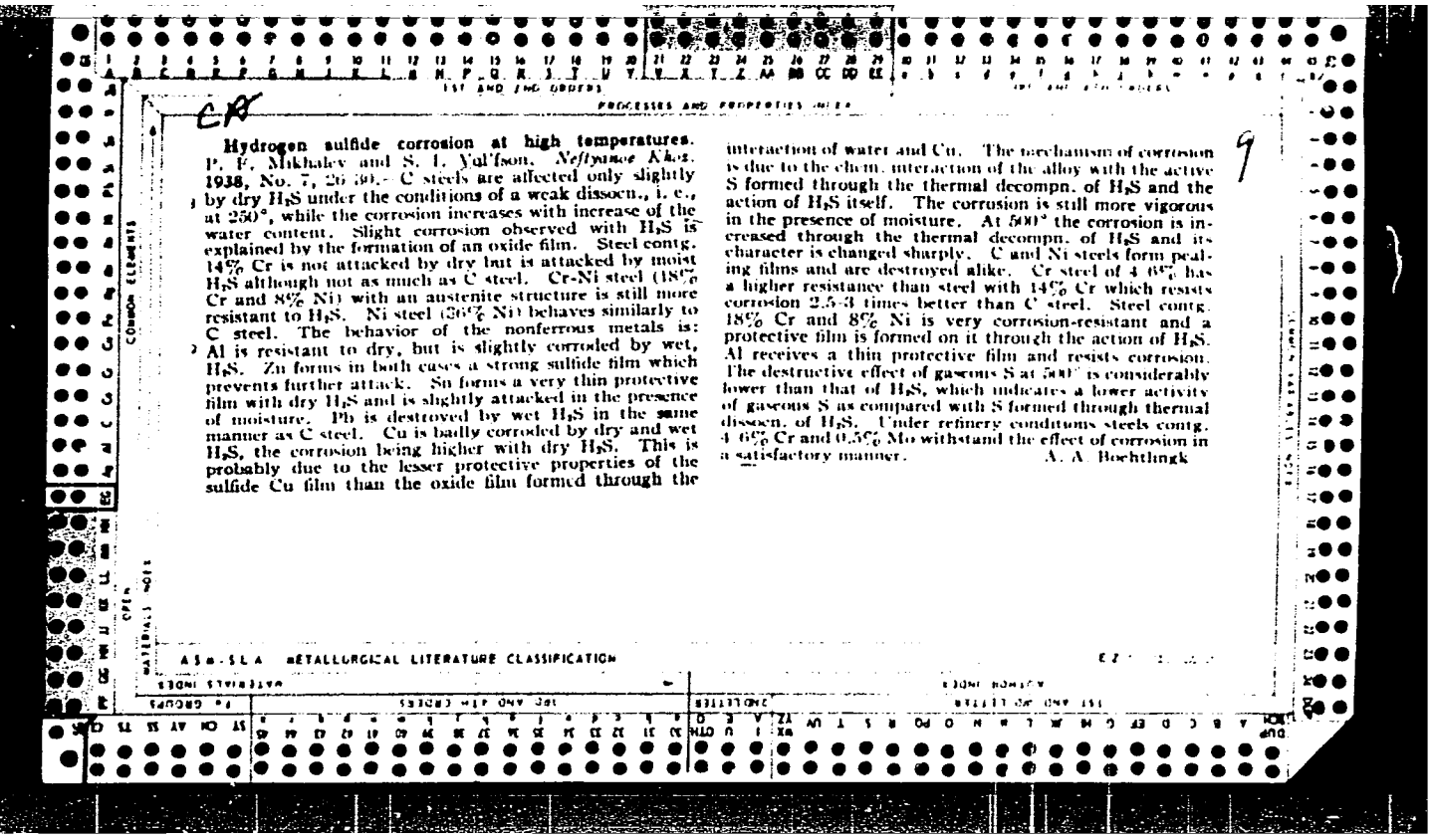
An investigation of Russian carbon steels by a rapid method at high temperatures. S. I. Vol'fson. *Vestnik Metallopromyshlennosti*, 1937, No. 18, 98–112. An investigation of mech. properties at temps. up to 900°, of various grades of Russian C steels, showed that these steels are not inferior to German steels of similar chem. compn.

S. I. Madorsky

ASM STEEL METALLURGICAL LITERATURE CLASSIFICATION



Corrosive properties of crude oil containing hydrogen sulfide and hydrogen chloride. P. P. Mikhalev and S. I. Vol'fson. *Neftyanoe Khoz.* 1938, No. 5, 34-7. The corrosive action of dry H_2S and HCl in the gaseous phase on metals and alloys is very weak. The presence of dry air increases the corrosive properties of H_2S slightly. The presence of moisture considerably increases the corrosive action of H_2S. Crude oil contg. large amts. of combined S (3%), such as the Ishimbaev oil, in the absence of water and H_2S is a weak corrosive agent toward steels contg. C 0.1 0.50, Mn 0.12 0.64, Si 0.1 3.8, P 0.011 0.33, S 0.011 0.035, Ni 0.37, Cr 0.22 and Co 0 0.52%. Crude oil contg. only dry H_2S is a weak corrosive agent. Crude oil contg. H_2S and water attacks metals vigorously, particularly C steels and Cu. The corrosion is probably caused by electrolytic action. A. A. Bochtlingk



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Hydrogen sulfide corrosion at high temperatures. P. P. Mikhalev and S. I. Yul'fson. *Neftyanoe Khoz.* **1938**, No. 7, 26-30.— C steels are affected only slightly by dry H_2S under the conditions of a weak dissocn., i. e., at 250°, while the corrosion increases with increase of the water content. Slight corrosion observed with H_2S is explained by the formation of an oxide film. Steel contg. 14% Cr is not attacked by dry but is attacked by moist H_2S although not as much as C steel. Cr-Ni steel (18% Cr and 8% Ni) with an austenite structure is still more resistant to H_2S. Ni steel (36% Ni) behaves similarly to C steel. The behavior of the nonferrous metals is: Al is resistant to dry, but is slightly corroded by wet, H_2S. Zn forms in both cases a strong sulfide film which prevents further attack. Sn forms a very thin protective film with dry H_2S and is slightly attacked in the presence of moisture. Pb is destroyed by wet H_2S in the same manner as C steel. Cu is badly corroded by dry and wet H_2S, the corrosion being higher with dry H_2S. This is probably due to the lesser protective properties of the sulfide Cu film than the oxide film formed through the interaction of water and Cu. The mechanism of corrosion is due to the chem. interaction of the alloy with the active S formed through the thermal decompn. of H_2S and the action of H_2S itself. The corrosion is still more vigorous in the presence of moisture. At 500° the corrosion is increased through the thermal decompn. of H_2S and its character is changed sharply. C and Ni steels form pealing films and are destroyed alike. Cr steel of 4-6% has a higher resistance than steel with 14% Cr which resists corrosion 2.5-3 times better than C steel. Steel contg. 18% Cr and 8% Ni is very corrosion-resistant and a protective film is formed on it through the action of H_2S. Al receives a thin protective film and resists corrosion. The destructive effect of gaseous S at 500° is considerably lower than that of H_2S, which indicates a lower activity of gaseous S as compared with S formed through thermal dissocn. of H_2S. Under refinery conditions steels contg. 4-6% Cr and 0.5% Mo withstand the effect of corrosion in a satisfactory manner. A. A. Boehtlingk

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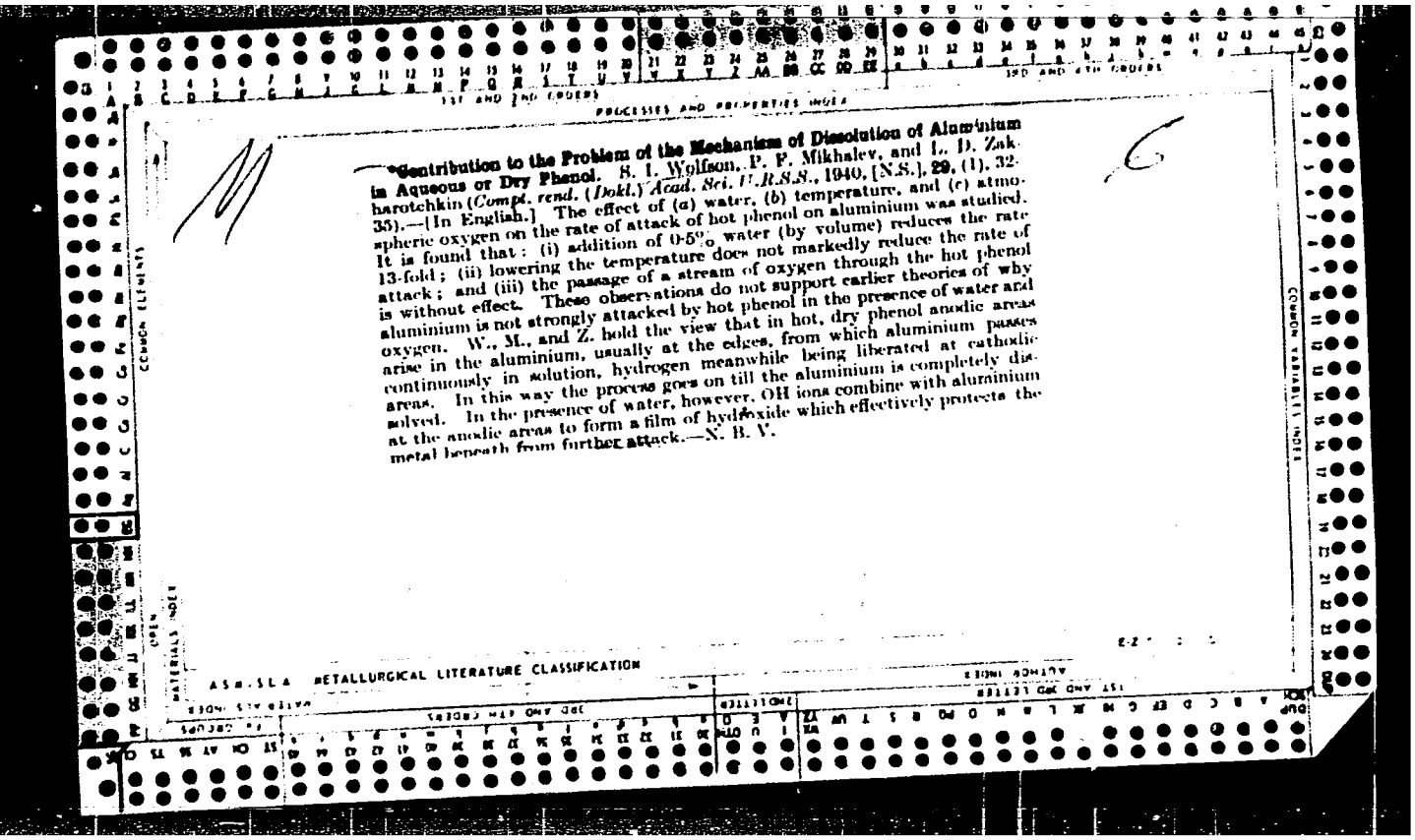
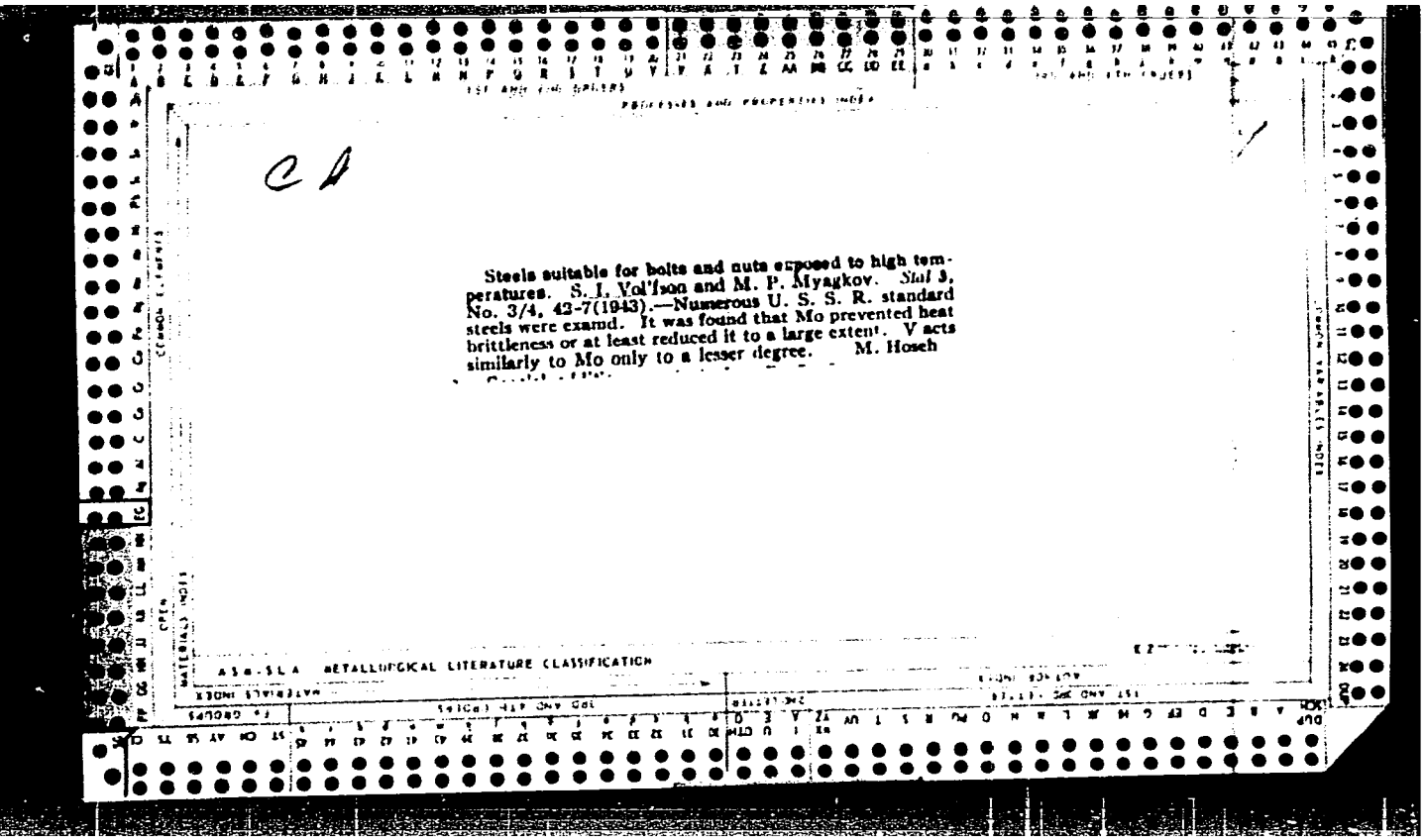


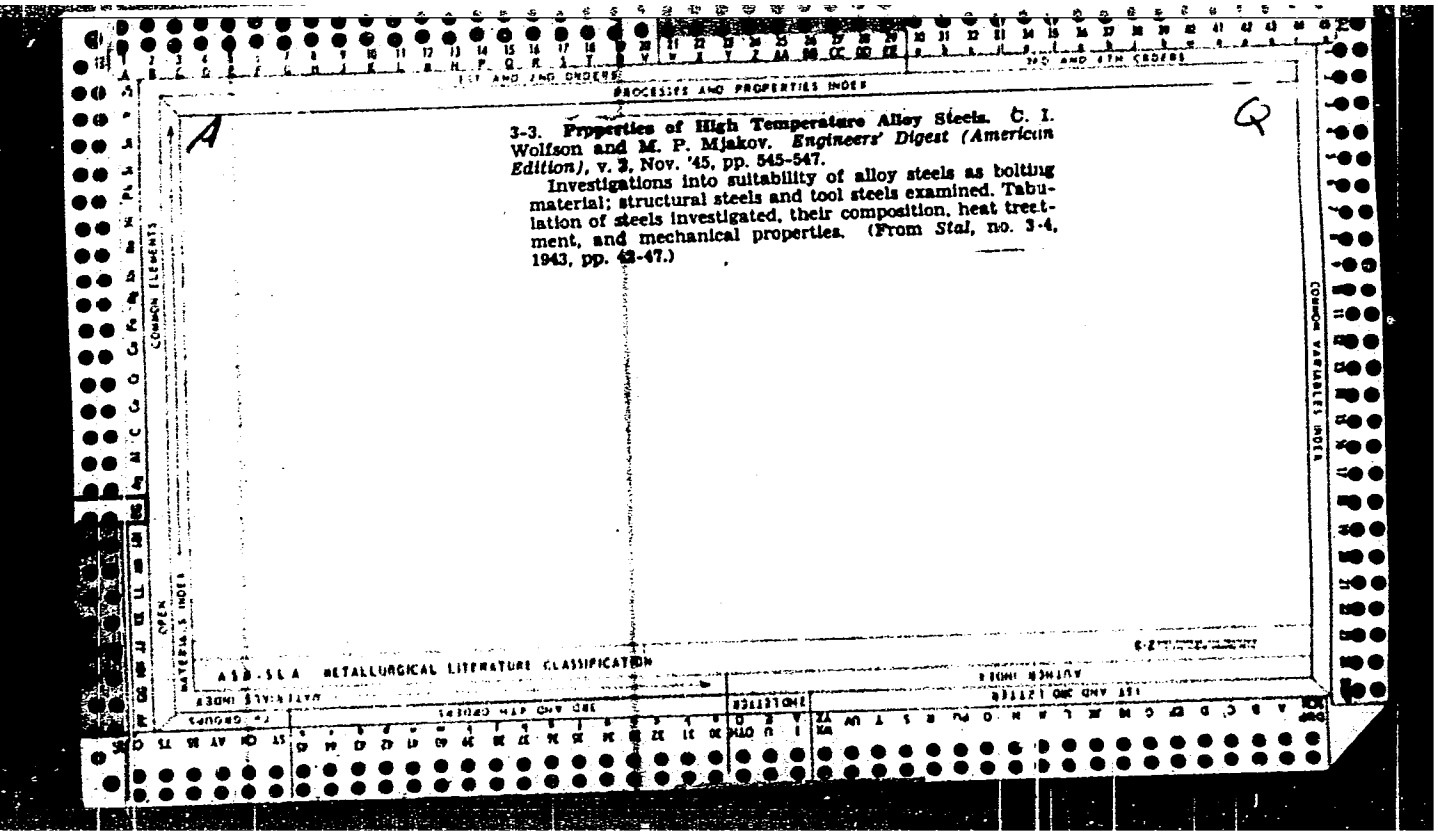
PROCESSES AND PROPERTIES INDEX

Contribution to the Problem of the Mechanism of Dissolution of Aluminium in Aqueous or Dry Phenol. S. I. Wolfson, P. F. Mikhalev, and L. D. Zakharotchkin (*Compt. rend. (Dokl.) Acad. Sci. U.R.S.S.*, 1940, [N.S.], **29**, (1), 32-35).—[In English.] The effect of (*a*) water, (*b*) temperature, and (*c*) atmospheric oxygen on the rate of attack of hot phenol on aluminium was studied. It is found that: (i) addition of 0·5% water (by volume) reduces the rate of attack 13-fold; (ii) lowering the temperature does not markedly reduce the rate of attack; and (iii) the passage of a stream of oxygen through the hot phenol is without effect. These observations do not support earlier theories of why aluminium is not strongly attacked by hot phenol in the presence of water and oxygen. W., M., and Z. hold the view that in hot, dry phenol anodic areas arise in the aluminium, usually at the edges, from which aluminium passes continuously in solution, hydrogen meanwhile being liberated at cathodic areas. In this way the process goes on till the aluminium is completely dissolved. In the presence of water, however, OH ions combine with aluminium at the anodic areas to form a film of hydroxide which effectively protects the metal beneath from further attack.—N. B. V.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

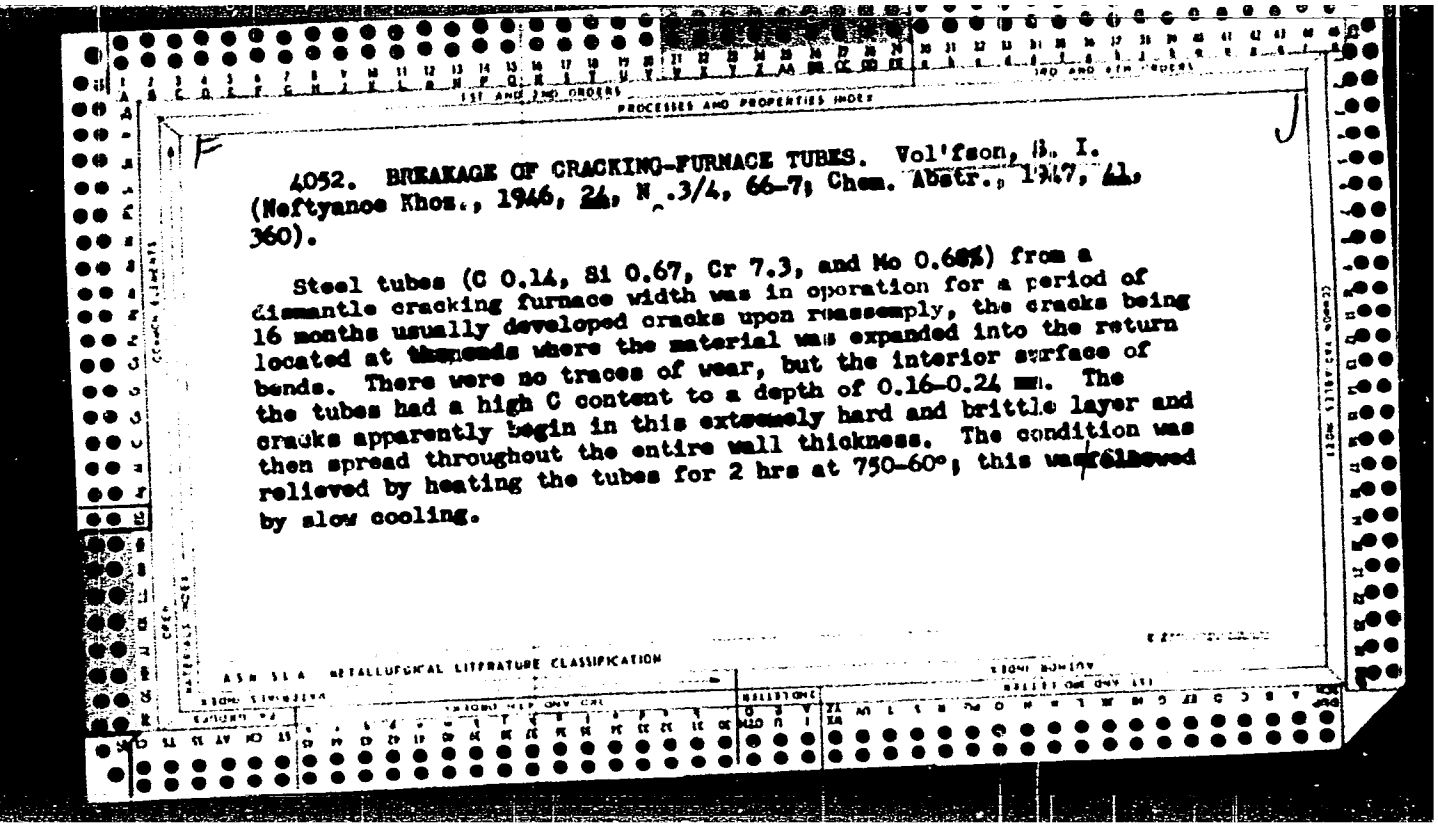


Steels suitable for bolts and nuts exposed to high temperatures. S. I. Vol'fson and M. P. Myagkov. *Stal* 3, No. 3/4, 42-7(1943).—Numerous U. S. S. R. standard steels were examd. It was found that Mo prevented heat brittleness or at least reduced it to a large extent. V acts similarly to Mo only to a lesser degree. M. Hoseh



3-3. **Properties of High Temperature Alloy Steels.** C. I. Wolfson and M. P. Mjakov. *Engineers' Digest (American Edition)*, v. 2, Nov. '45, pp. 545-547.

Investigations into suitability of alloy steels as bolting material; structural steels and tool steels examined. Tabulation of steels investigated, their composition, heat treatment, and mechanical properties. (From *Stal*, no. 3-4, 1943, pp. 43-47.)



4052. BREAKAGE OF CRACKING-FURNACE TUBES. Vol'fson, B. I. (Neftyanoe Khoz., 1946, 24, N 3/4, 66-7; Chem. Abstr., 1947, 41, 360).

Steel tubes (C 0.14, Si 0.67, Cr 7.3, and Mo 0.68%) from a dismantle cracking furnace width was in operation for a period of 16 months usually developed cracks upon reassemply, the cracks being located at the ends where the material was expanded into the return bends. There were no traces of wear, but the interior surface of the tubes had a high C content to a depth of 0.16-0.24 mm. The cracks apparently begin in this extremely hard and brittle layer and then spread throughout the entire wall thickness. The condition was relieved by heating the tubes for 2 hrs at 750-60°; this was followed by slow cooling.

VOL'FSON, S. I. ,comp.

Meditsinskiy latino-russkiy i russkolintinskiy slovar' (Latin-Russian and Russian-Latin medical dictionary) Moskva, Medgiz, 1951.
284 p.

VIKHMAN, Yu.L.; BABITSKIY, I.F.; VOL'FSON, S.I.; YERSHOV, P.R., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Calculation and design of petroleum refining apparatus] Raschet i konstruirovanie neftezavodskoi apparatury. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1953. 650 p. (MIRA 9:8)

(Petroleum--Refining)

VOL'FSON, S. I.

USSR/ Engineering - Metals testing

Card 1/1 Pub. 128 - 15/28

Authors : Vol'fson, S. I., Cand. of Mech. Sc.; D'yakov, V. G., Cand. of Mech. Sc.; and Abramova, Z. A., Eng.

Title : Low-alloy silicon-manganese steel, Mark MK

Periodical : Vest. mash. 35/6, 65 - 67, Jun 1955

Abstract : The MK silicon-manganese steel specimens consisting of electric welded pipes measuring 529 x 9 mm, and sheets 16 mm thick, were tested at 700 to 900° temperatures to determine their plasticity and the impact strength. Technical data is given on chemical composition and types of specimens used. The above mentioned steel is manufactured by the "Il'in" plant. Illustrations; diagrams; tables.

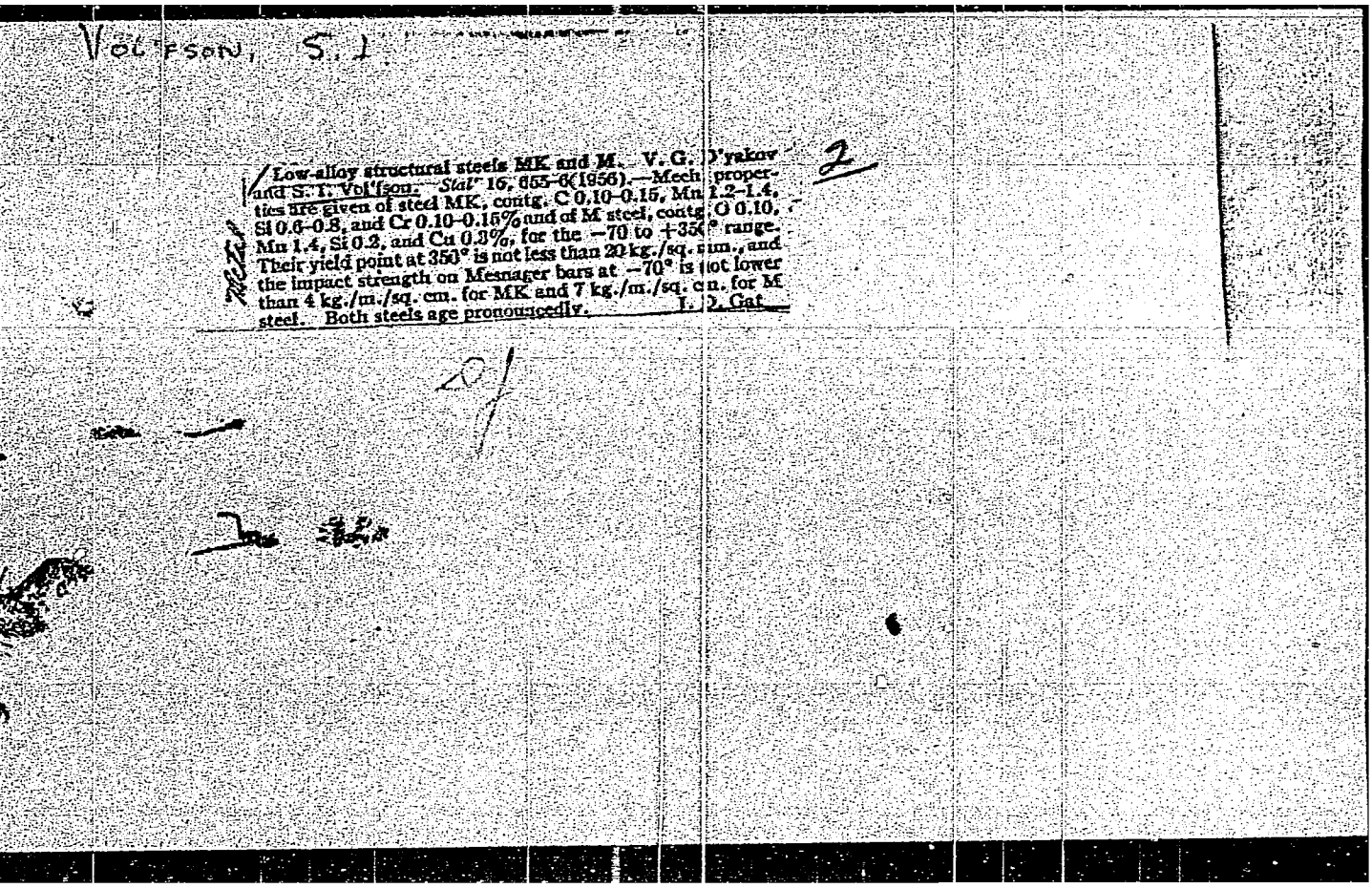
Institution : .....

Submitted : .....

TOPCHIYEV, A.V., akademik, redaktor; TROFIMUK, A.A., redaktor; TREBIN, F.A., doktor tekhnicheskikh nauk, redaktor; FEDYNSKIY, V.V., doktor fiziko-matematicheskikh nauk, redaktor; SUKHANOVA, V.P., inzhener, redaktor; POSTNIKOV, V.G., redaktor; VOL'FSON, S.I., redaktor; BEKHMAN, Yu.K., vedushchiy redaktor; KOVALEVA, A.A., vedushchiy redaktor; PERSHINA, Ye.G., vedushchiy redaktor; SAVINA, Z.A., vedushchiy redaktor; USOVA, N.G., vedushchiy redaktor; ZAMARAYEVA, K.M., vedushchiy redaktor; NOVIKOVA, M.M., vedushchiy redaktor; L'VOVA, L.A., vedushchiy redaktor; YERSHOV, P.R., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor; TROFIMOV, A.V., tekhnicheskiy redaktor

[4th International Petroleum Congress] IV Mezhdunarodnyi neftianoi kongress. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry. Vol.1. [The geology of oil and gas deposits] Geologiia neftianykh i gazovykh mestorozhdenii. (Pod red. A.A.Trofimuka). 1956. 534 p. Vol.2. [Geophysical methods in prospecting] Geofizicheskie metody razvedki. (Pod red. V.V.Fedynskogo). 1956. 392 p. Vol.4. [The technology of oil and shale processing] Tekhnologiia pererabotki nefti i slantsev. 1956. 527 p. Vol.5. [Chemical processing of oil and gas] Khimicheskaia pererabotka nefti i gaza. 1956. 302 p. Vol.8. [Equipment, metals and protection from corrosion] Oborudovanie, metally i zashchita ot korrozii. 1956. 227 p. (MLRA 9:12)

1. International Petroleum Congress, 4th, Rome, 1955. 2. Chlen-korrespondent AN SSSR (for Trofimuk)
(Prospecting--Geophysical methods) (Petroleum--Refining)
(Gas, Natural)



Vol'fson, S. I.

Low-alloy structural steels MK and M. V. G. D'yakov and S. I. Vol'fson. *Stal'* 16, 655-6(1956).—Mech properties are given of steel MK, contg. C 0.10–0.15, Mn 1.2–1.4, Si 0.6–0.8, and Cr 0.10–0.15% and of M steel, contg C 0.10, Mn 1.4, Si 0.2, and Cu 0.3%, for the −70 to +35[illegible] range. Their yield point at 350° is not less than 20 kg./sq. mm., and the impact strength on Mesnager bars at −70° is not lower than 4 kg./m./sq. cm. for MK and 7 kg./m./sq. cm. for M steel. Both steels age pronouncedly. I. Gut

VOL'FSON, S.I.; PUPELIS, V.N.; NASIBULLIN, A.Sh.

Causes of increased corrosion of the ends of still pipes in plants refining aggressive oils. Mash. i neft. obor. no.10: 13-15 '63. (MIRA 17:4)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya i Novoufimskiy neftepererabatyvayushchiy zavod.

ZALESSKAYA, Ye.B.; VOL'FSON, S.I.

Heat hardened Kh5M-U pipes. Mash. i neft. obor. no.4: 26-28 '64. (MIRA 17:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.

L 41606-65 EWT(m)/EPF(c)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) Pr-4 MJW/JD/HM/
ACCESSION NR: AR5005640 S/0081/64/000/022/P012/P012 WB/WE

SOURCE: Ref. zh. Khimiya. Abs. 22P75

38
B

AUTHOR: Zakharochkin, L.D.; Vol'fson, S.I.

TITLE: The carboxylic acids of petroleum (petroleum acids) and their corrosive properties

CITED SOURCE: Tr. Gos. n.-i. i proyektn. in-ta neft. mashinostr., vyp. 2, 1964, 91-106

TOPIC TAGS: petroleum acid, carboxylic acid, Black Sea petroleum, Baku crude, steel corrosion, stainless steel, chromium nickel steel, petroleum storage, heavy petroleum, thermal degradation, carbon steel/1Kh18N9T steel

TRANSLATION: The authors investigated some of the general and corrosive properties of the petroleum acids found in the heavy crude oils from the region of the Black Sea. These oils contain the largest amounts of petroleum acids (predominantly high-molecular-weight acids), even larger than in the heavy Baku oils. The content of petroleum acids in the higher fractions of these oils increases with the specific gravity of the fraction. The petroleum acids found in the fractions up to 300C undergo practically no degradation. At 350C and above, rapid decomposition sets in and at 430-450C most of the petroleum acids

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ACCESSION NR: AR5005640

undergo thermal degradation. In the high-temperature zone (250-260C), there is increased corrosive wear. At 30-40C, the rate of corrosion of carbon steel is insignificant and is of no importance for practical storage and transportation. The degree of corrosion depends to a significant extent on the content of petroleum acids found in the petroleum products. At the petroleum acid content in Black Sea petroleum of approximately 100-150 mg KOH per 100 g of product (temperature of 285-290C, duration 20 hrs.), the degree of corrosion is not high. Brand 1Kh18N9T of stainless chromium-nickel steel has sufficient corrosion resistance to withstand the effects of the petroleum acids in Black Sea petroleum. A.N.

ENCL: 00 SUB CODE: FP, MM

Card 2/2

VOL'FSON, S.I.

Use of thermal-cracking tube stills. Mash. i neft'. obor. no.1:36-41 '63. (MIRA 17:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.

ZALESSKAYA, Ye.B.; VOL'PSON, [illegible]

Pipes made of 1Kh3VF steel. Stal' 23 no.10:935-936 O '63.
(MIRA 16:11)

1. Gosudarstvennyy nauchno-issledovatel'skiy proyektnyy institut neftyanogo mashinostroyeniya.

VOL'FOSON, S.I.; VLADIMIROV, N.A.

Organize the production of converter-steel articles. Standartizatsiia 26 no.6:52 Je '62. (MIRA 15:7)
(Bessemer process)

CHESKIS, Kh.I., kand.tekhn.nauk; VOL'FSON, S.I., kand.tekhn.nauk

Intercrystallite corrosion of Kh18N9T-1 cast steel. Khim.mash. no.5:34-37 S-O '60. (MIRA 13:9)
(Steel--Corrosion)

ZAKHAROCHKIN, L.D.; VOL'FSON, S.I.

High temperature gas corrosion in media containing hydrogen sulfide. Khim.sera-i azotorg.soed.sod.v neft.i nefteprod. 3:411-418 '60. (MIRA 14:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.
(Metals--Corrosion)

BABITSKIY, Il'ya Filippovich; VIKHMAN, Georgiy L'vovich; VOL'FSON, Samuil Iosifovich; KORSUN, Ye.P., ved. red.

[Designing and constructing the apparatus of petroleum refineries] Raschet i konstruirovanie apparatury neftepererabatyvaiushchikh zavodov. 2. perer. i dop. izd. Moskva, Nedra, 1965. 903 p. (MIRA 18:2)

VOL'FTSUN, L.B.

Utilizing the results of determinations of soil-moisture supply in drainage areas in water balance calculations. Trudy GGI no.92: 119-137 '64. (MIRA 17:11)

VOLGIN, L.I.

Interrelation between the peak, effective, and mean values of an electric signal. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 13 no.2:127-134 '64. (MIRA 17:9)

VOL'FSON, S.I.

Use of calorized pipes in furnaces of processing units. Khim.i tekh.topl.i masel 6 no.12:37-39 D '61. (MIRA 15:1)
(Pipe)

CHESKIS, Kh.I.; VOL'FSON, S.I.

Effect of temperature and duration of heating on the intercrystalline corrosion of 1Kh18N9T steel. Avtom. svar. 13 no.11:12-17 N '60. (MIRA 13:11)

1. Giproneftemash.
(Chromium-nickel steel—Corrosion)
(Metals, Effect of temperature on)

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S/125/60/000/011/003/016
A161/A133

18.8300 1138 1454

AUTHORS: Cheskis, Kh.I., and Vol'fson, S.I.

TITLE: The effect of temperature and heating time on intercrystalline corrosion in 1Kh18N9T (1Kh18N9T) steel

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1960, 13-17

TEXT: The 1Kh18N9T chrome-nickel-titanium austenite steel is used in the oil industry for power and other hot-working equipment in the range of 400-600°C. The Giproneftemash Institute has investigated this steel with a titanium-carbon ratio of $\frac{\%Ti}{\%C - 0.03}$ from 5.1 to 17.5 after hardening at 1,050°C quenching in water and heating from 0.5 to 10,000 hours at temperatures between 500 and 700°. A standard intercrystalline corrosion test solution was used (110 g/liter $CuSO_4 \cdot 5H_2O$, and 50 cm^3/liter H_2SO_4); 4 mm thick specimen plates were boiled for 120 hours. Intercrystalline corrosion was measured by measurements of electric resistance, bend angle, and loss of metallic sound. The results are given in diagrams. The minimum time during which corrosion

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start (t_m) was reduced with an increasing temperature in all tested 1Kh18N9T steel compositions, but from a certain temperature point on steel was not at all prone to intercrystalline corrosion. The higher the $\frac{\%Ti}{\%C - 0.03}$ relation the lower was this point. Addition of titanium considerably raised t_m at a given temperature and lowered the maximum temperature up to which steel developed corrosion. Steel with a Ti/C ratio of 15 had a tendency to corrosion only after 5,000 and 10,000 hours heating at 500°, and 5,000 hours at 550°. The danger zone (tendency to corrosion) is marked by an interrupted line in the diagrams. It is stated that the tendency to corrosion developed in heating to elevated temperatures (675, 650, 600 and 575°C) and disappeared again when the steel was held at same temperature for longer time. The following general conclusions are drawn: 1Kh18N9T steel develops intercrystalline corrosion under prolonged effect of elevated temperature just like the "18-8" steel without titanium; a titanium addition to "18-8" steel or an increase of the titanium content in 1Kh18N9T steel at a titanium - to carbon ratio from 5.1:1 to 15:1 makes the metal develop intercrystalline corrosion at lower temperature and during a more protracted time. There are 7 figures and 4 Soviet references.

The effect of temperature and heating time...

ASSOCIATION: Giproneftemash

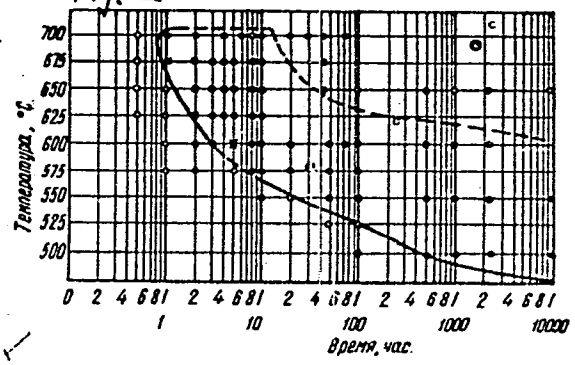
SUBMITTED: March 28, 1960

Figure 2:

Dependence of intercrystalline corrosion in steel with $\frac{\%Ti}{\%C-0.03} = 5.1$ on the temperature between 500 and 700°C and time from 1 to 10,000 hours

⊙ - no tendency to intercrystalline corrosion
c - tendency to corrosion
× - weak corrosion tendency

Fig. 2



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The effect of temperature and heating time...

Fig. 6

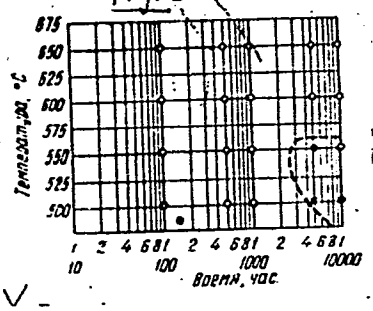

Figure 6
Same dependence in steel with a Ti/C ratio of 15.0 (specification see fig.2)

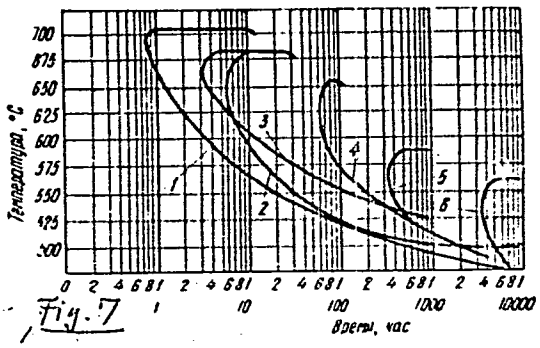

Fig. 7

Figure 7
The effect of the titanium-to-carbon ratio in 1Kh18N9T steel

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A006/A001

18.8300

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 9, # 2E67

AUTHORS: Cheskis, Kh.I., Vol'fson, S.I., Medvedev, Yu.S.

TITLE: The Effect of Extended Heating on the Proneness to Intercrystalline Corrosion of 1Kh18N9T (1Kh18N9T) Steel

PERIODICAL: V sb. "Mezhkristallitn. korroziya i korroziya metallov v napryazh. sostoyanii", Moscow, Mashgiz, 1960, pp. 27 - 44

TEXT: It is shown that the A-2 test method is completely unsuitable for evaluating the proneness to intercrystalline corrosion of steels, intended for operations at elevated temperatures (550 - 650°C). Impoverishment in Ti and a rise of the quenching temperature from 1,050 to 1,200°C entails increased proneness of 1Kh18N9T steel to intercrystalline corrosion. The introduction of Ti into 18- 8 steel does not protect preliminary quenched steel against intercrystalline corrosion after heating at 550-650°C. This is obtained by stabilizing annealing of preliminary quenched 1Kh18N9T steel with a Ti-C ratio as high as 6.2 and more, for 3 hours at 850-870°C. There are 4 references. Yu.S.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

89583
S/184/60/000/005/003/021
A104/A026

18.8300

AUTHORS: Cheskis, Kh.I.; Vol'fson, S.I.; - Candidates of Technical Sciences

TITLE: Intercrystalline Corrosion of Х18Н9Т-л (Kh18N9T-1) Cast Steel

PERIODICAL: Khimicheskoye mashinostroyeniye, 1960, No. 5, pp. 34 - 37

TEXT: Test results concerning the influence of long-time heating on the intercrystalline corrosion tendency of cast steels are given. Tested were Kh18N9T-1 steels containing titanium and carbon at a ratio varying from 4.5 to 13 [Ti : (C - 0.03)] and 18-12 steels with a higher content of nickel. Samples were subjected to two types of thermal processing, i.e., hardening at 1,050 - 1,100°C in water and hardening followed by 3-h stabilization annealing at 850 - 870°C. Preliminary tests revealed that the conventional method of bending 4-mm cast steel samples is unsatisfactory, making it difficult to determine which fractures were caused by intercrystalline corrosion and which by the reduced plasticity of the metal. Therefore, only samples of 1-mm thickness were used in final tests, a brief description of which is given. Classification of samples as to their tendency to intercrystalline corrosion was based on losses of metal sounding, bending tests and changes in electric resistance. Results of tests on 1Kh18N9T-1 steel containing 10% ferrite and 1Х18Н12Б1 (1Kh18N12B1) steel contain-

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Intercrystalline Corrosion of Х18Н9Т-Л (Kh18N9T-1) Cast Steel

ing 3% ferrite are explained. R. Scherer states in the periodical "Archiv für das Eisenhüttenwesen", 1939, No. 1 (Ref. 3) that the presence of ferrite in 18-8 chromium-nickel steel renders the steel immune to intercrystalline corrosion. Tests carried out in the Institut svarki Akademii nauk USSR (Welding Institute of the Academy of Sciences of the UkrSSR) showed that addition of ferrite forming fillers (Si, V, Al) resulting in an austenite-ferrite structure of joint metal, rapidly increase the "immunity" of welded joints, according to B.I. Medovan (Ref. 4). Present tests proved the contrary, i.e., that even a content of 20% ferrite and high relative contents of titanium and carbon do not eliminate the tendency toward intercrystalline corrosion of heated 18-8T steel. It was proved that the stabilization annealing of Kh18N9T steel with Ti : (C - 0.03) $\geq$ 6.6 considerably increases its intercrystalline corrosion resistance at 500 - 600°C, though not rendering it completely immune as in the case of rolled steel (Ref. 5, Kh.I. Cheskis, S.I. Vol'fson and Yu.S. Medvedev). Kh18N9T-1 steel used at increased temperatures in mediums causing intercrystalline corrosion should be subjected to austenitic hardening and stabilization annealing at which the relation of Ti : : (C - 0.03) should not be lower than 6.6 - 70. There are 2 figures, 2 tables and 5 references: 1 German, 1 Polish and 3 Soviet.

Vol'fson, S.I.

PHASE I BOOK EXPLOITATION SOV/4535

Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii (Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960. 358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House: I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy, Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences (Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova, Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical Sciences.

PURPOSE: This collection of articles is intended for technical personnel concerned with problems of corrosion of metals.

COVERAGE: The collection contains discussions of intercrystalline corrosion of stainless steels and stress corrosion of carbon steels, low-alloy and stainless steels, and light-weight and nonferrous alloys. The tendency of steels of various composition and system to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analyzed. No personalities are mentioned. Most of the articles are accompained by bibliographic references, the majority of which are Soviet.

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VeUFSaM, S.L.

PHASE I BOOK EXPLOITATION SOV/4535

Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv

Mezhkristallitnaya korroziya i korroziya metallov v napryazhennom sostoyanii (Intercrystalline and Stress Corrosion of Metals) Moscow, Mashgiz, 1960. 358 p. 3,000 copies printed.

Ed.: I.A. Levin, Candidate of Technical Sciences; Ed. of Publishing House: I.I. Lesnichenko, Engineer; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on Metalworking and Instrument Making (Mashgiz): V.V. Rzhavinskiy, Engineer; Editorial Board: I.A. Levin, Candidate of Technical Sciences (Chairman), V.P. Batrakov, Candidate of Technical Sciences, V.M. Nikiforova, Candidate of Technical Sciences, and A.V. Turkovskaya, Candidate of Technical Sciences.

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Card 1/9

various composition and systems to corrode under certain conditions is discussed and the nature of corrosion and corrosion cracking is analyzed. No personalities are mentioned. Most of the articles are accompanied by bibliographic references, the majority of which are Soviet.

TABLE OF CONTENTS:

VOL'FSON, S.I.; PLANOVSKIY, A.

Follow up on our articles. Neftianik 4 no.1:31 Ja '59. (MIRA 12:4)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.
(Petroleum--Refining)

ZAKHAROCHKIN, L.D.; VOL'FSON, S.I.; KLOCHKOVA, L.G.

Chemical and technological control of the corrosion of low-temperature equipment of AVT units. Khim. i tekh.topl. i masel 4 no.3:46-52 Mr '59. (MIRA 12:4)

1. Giproneftemash.
(Petroleum refineries--Equipment and supplies)
(Corrosion and anticorrosives)

14(5) SOV/92-59-1-25/36

AUTHOR: Vol'fson, S.I., Staff Member of Giproneftemash

TITLE: Experience Is the Basis of Planning (Uchet opyta -- osnova proyektirovaniya)

PERIODICAL: Neftyanik, 1959, Nr 1 p 31 (USSR)

ABSTRACT: The author states that he agrees with the ideas expressed by E.B. Khesin in his article on designing new processing units, as published in Neftyanik, 1958, Nr 5. Khesin is right in recommending the installation of integrally constructed furnace coils in the atmospheric-vaccuum pipe stills. The author maintains, however, that such coils, without returnbends, can also be used in other units, such as hydraulic treatment, catalytic reforming units, etc. In his opinion it is also advisable to get rid of returnbends in furnaces of thermal cracking units. Modern methods of measuring the wall thickness of each coil tube and of regulating automatically the temperature of furnace tubes, when they are flushed with steam, make the use of integrally constructed tubes without any returnbends entirely possible. The weight of a tube coil which has no returnbends decreases approximately 35 percent. In 1945 the Giproazneft' developed the design of furnaces without returnbends, but unfortunately this design has not been utilized. The author believes that

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the change of the stream flow will reduce the incidence of tube wall burn out. In this connection he recommends that the experience gained in the Soviet Union and abroad be taken into account.

ASSOCIATION: Giproneftemash (The State Design and Scientific Research Institute for Petroleum Machinery)

VOL'FSON, S.I.; LUSHNIKOV, A.G., redaktor; SHUL'TS, Yu.F., redaktor; GABERLAND, M.I., tekhnicheskiy redaktor.

[Latin-Russian medical dictionary] Latino-russkii meditsinskii slovar'. Pod red.A.G.Lushnikova. Izd.2-oe, perer. i dop. Moskva, Gos.izd-vo med.lit-ry, 1957. 422 p. (MIRA 10:11)
(Latin language--Dictionaries--Russian) (Medicine--Dictionaries)

CHESKIS, Kh.I.; VOL'FSON, S.I.

Intercrystalline corrosion of welded joints in 1Kh18N9T steel as a result of work at high temperatures. Avtom. svar. 11 no.5:18-24 My '58. (MIRA 11:6)

1. Giproneftemash.
(Steel alloys--Welding) (Metals at high temperatures)
(Corrosion and anticorrosives)

CHESKIS, Kh.I., kand.tekhn.nauk; VOL'FSON, S.I., kand.tekhn.nauk

Effect of prolonged heating on the structure and properties of 18-8 type steels. Metalloved. i obr. met. no.4:16-25 Ap '58. (MIRA 11:4)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.
(Metals, Effect of temperature on) (Steel--Metallography)

VOL 4 SOV S. 1

125-58-5-3/13

AUTHORS: Cheskis, Kh.I., and Vol'fson, S.I.

TITLE: Intercrystalline Corrosion of Steel "1Kh18N9T"-Welds, as a Result of Work at High Temperatures (Mezhkristallitnaya korroziya svarnykh shvov stali 1Kh18N9T v rezul'tate raboty pri povyshennykh temperaturakh)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 5, pp 18-24 (USSR)

ABSTRACT: The article deals with intercrystalline corrosion at joints, welded by electrodes "ZIO - 3" of the type "EA1B" on steel "1Kh18N9T" (used for vessels and pipes in the petroleum processing and other branches of industry). The following conclusions were made. 1) The welds do not develop intercrystalline corrosion after welding, hardening and heating for 2 hours at 650°C. 2) Long heating at 500-600° makes both the welds and the base metal prone to intercrystalline corrosion, and this tendency increases with an increased duration of heating from 100 to 5,000 hrs. With heating at 650°, corrosion-proneness becomes less, and finally disappears as the duration of heating increases. 3) Welds subjected to stabilizing-annealing stay corrosion-proof after long heating (up to

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Intercrystalline Corrosion of Steel "1Kh18N9T"-Welds, as a Result of Work at High Temperatures

5,000 hrs) at 550° when the relation $\left[\frac{Ti}{C - 0.03}\right]$ in the steel exceeds 6.2, and $\frac{Nb}{C}$ is $\geq 9 \div 10$. 4) Stabilized-annealing must be always recommended for welds on steel "1Kh18N9T" (for work at high temperatures in mediums which can cause intercrystalline corrosion) irrespective of the treatment of the pipes, i.e. if the pipes were stabilization-annealed or hardened. The following persons participated in the experiments: V.A. Nikiforov, L.S. Livshits, and L.D. Zakharochkin. There are 3 figures and 2 tables.

ASSOCIATION: Giproneftemash

SUBMITTED: November 10, 1957

AVAILABLE: Library of Congress

Vol'fson, S. I.

129-4-4/12

AUTHORS: Cheskis, Kh. I., Candidate of Technical Sciences, and Vol'fson, S. I., Candidate of Technical Sciences.

TITLE: Influence of long duration heating on the structure and the properties of Type 18-8 steels. (Vliyaniye dlitel'nogo nagreva na strukturu i svoystva staley tipa 18-8).

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.4, pp. 16-25 (USSR).

ABSTRACT: The authors investigated systematically the influence of long duration heating at 500 to 900°C on the structure and the properties of 18-8 type standard steels. The specimens of the studied steels were annealed for various durations (up to 10 000 hours) at 500 to 900°C in electric furnaces and the temperature was maintained automatically with an accuracy of ± 5°C. For some grades of steel the influence was also studied of repeated heating and cooling on the degree of transformation. For investigating the structural transformations and the changes of the mechanical and physical properties metallographic methods were used as well as determination of the magnetic saturation and of the specific electric resistance, X-ray-structural analysis

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Influence of long duration heating on the structure and the properties of Type 18-8 steels.

of cuts and of electrolytically deposited precipitates. Furthermore, the relative quantity of phases located along the boundaries of the austenite grains and the hardness, impact strength and fracture by static load were determined. For revealing more clearly chromium carbides along grain boundaries a reagent was used consisting of 5 g of picric acid, 5 ml of hydrochloric acid and 250 ml of water. This reagent does not etch the structure of some of the tested steels after hardening for obtaining austenite but it reveals clearly the carbide networks in these after annealing at elevated temperatures. For revealing the σ-phase a different reagent was used which acts on the carbides and particularly on the austenite but does not etch particles of the α and σ-phases. The structure studies were made at magnifications of 540 times and in some cases 1000 times. The chemical compositions of the tested steels are entered in Table 1, p.17. Some of these were quenched in water from 1050--1075°C and two of the steels were quenched from temperatures of 1150 to 1170°C. The results are described and discussed in great

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Influence of long duration heating on the structure and the properties of Type 18-8 steels.

detail and the following conclusions are arrived at:
1. The intensity of austenite transformation in the steels 0X18H9, 1X18H9 and 2X18H9 during holding over long periods in the temperature range 500 to 900°C and also the character of the separating out phases depends on the temperature, the holding time and the carbon content in the steel.
2. In steels with low carbon contents, of the order of 0.07% (0X18H9), the transformation takes place as a result of formation of the α-phase and of carbides and these processes are completed only at the grain boundaries.
3. In steels with a comparatively high carbon content, of the order of 0.18% (2X18H9), the transformations take place fundamentally as a result of separation of the carbides. Holding for 3500 hours at 700°C and holding for shorter durations at 800 and 900°C brings about transformations throughout the entire grain, which is not the case for steel with lower carbon contents.
4. From the point of view of the character of the transformations, the steel 1X18H9 occupies an intermediate position between the steels 0X18H9 and 2X18H9 but it is nearer in its behaviour to 0X18H9 steel.

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5. In addition to austenite decomposition, a diffusion of chromium from the more enriched parts of the grain into the impoverished parts and a partial transformation of the α-phase into the γ-phase seems to take place in 18-8 type steels. Therefore, on increasing the holding time or the temperature, the magnetic saturation drops. With increasing temperature and holding time carbide coagulations are observed.
6. The Cr-Ni-Mn austenite of the steel X13H4Г9 is less stable than the Cr-Ni austenite of the steel 18-8; the transformations taking place at 600°C lead to a sharp decrease of the impact strength of the steel X13H4Г9.
7. The steels 1X18H9T and X18H11Б become transformed as a result of long duration holding at 500 to 800°C; the nature of these transformations differs from that of transformations in steels without Ti or Nb.
8. The steel 1X18H9T contains in its initial state and after annealing at 500 to 700°C a certain amount of ferrite in addition to the carbides (and in some cases also a σ-phase). The austenite of the steel X18H11Б containing 12% Ni is more stable and does not become

Influence of long duration heating on the structure and the properties of Type 18-8 steels.

transformed into ferrite during heating.
9. The structural transformations in type 18-8 steel lead to a strong drop of the impact strength and to a certain reduction of the plastic properties during static fracture. The decrease in impact strength and ductility of steels containing Ti and Nb is more pronounced than in similar steels not containing carbide forming admixtures.
There are 7 figures, 6 tables and 8 references - 3 Russian, 5 English.

ASSOCIATION: **Giproneftemash.**

AVAILABLE: Library of Congress.

Card 5/5

L 23365-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) MJW/JD/WB

ACCESSION NR: AR5000736 S/0277/64/000/009/0009/0009

SOURCE: Ref. zh. Mashinostroitel'ny*ye materialy*, konstruktsii i raschet detaley mashin. Gidroprivod. Otd. vy*p., Abs. 9.48.58

AUTHOR: Zalesskaya, Ye. B.; Vol'fson, S. I.

TITLE: Corrosion-resistant pipes of Kh8VF for furnaces and connecting piping in oil refineries

CITED SOURCE: Tr. Gos. n.-i. i proyektn. in-t neft. mashinostr., vy*p., 2, 1964, 126-131

TOPIC TAGS: pipe, metal corrosion, corrosion resistance, sulfur, oil refining/ steel Kh8VF, steel Kh5M, steel Kh5VF

TRANSLATION: The results of an investigation of mechanical properties during short term elongation at temperatures of 20-600°, impact strength at temperatures from 20 to -40°, and long term strength and creep at temperatures of 500-650° are presented for steels Kh8VF, Kh5M, and Kh5VF. All the steels have almost identical properties. Actual use in furnaces of oil refineries showed that the resistance of

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L 23365-65
ACCESSION NR: AR5000736

pipes made of steel Kh8VF in oil media containing sulfur was not less than two times greater than the resistance of pipes made of steels Kh5M and Kh5VF, whose resistance was about the same. There is a marked economic advantage in using pipes made of steel Kh8VF. 2 figures. 6 tables.

SUB CODE: MM ENCL: 00

Card 2/2

VOL'FSON, S.I.; [illegible]

Determining the standard quantity of spare parts required for repairing equipment of petroleum-refineries and petrochemical plants. Mash. i neft. obor. no.6:[illegible] '63. (MIRA 17:8)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut neftyanogo mashinostroyeniya.

CA

13

Processes that take place in the roasting of zinc phosphate dental cement. V. P. Zhuravlev, S. L. Volfson, and B. I. Shevcleva (Lensoviet Inst. Technol., Leningrad). *U. Applied Chem. U.S.S.R.* 23, 121–8(1950)(Engl. translation); *Zhur. Prikład. Khim.* 23, 118–26; cf. *C.A.* 44, 6053e.—Optical and x-ray methods were used to study the processes taking place in the ZnO-MgO-CaO-SiO_2 system during heat-treatment up to 1250°. One-component, binary, ternary, and quaternary systems were investigated with proportions of the oxides in agreement with established compn. of zinc phosphate cement. Its phase compn. is characterized by the presence of ZnO, a solid soln. of ZnO in MgO, and Zn orthosilicate. Mineralizers (cryolite, borax, fluorite) facilitate fusion and increase grain size of the ZnO grains; they also reduce roasting temp. 100–150° and improve quality. M. McMahon

VOL'FSON, S. L.

26412 Vliyaniye gidrotermal'noy obrabotki na tverdeniye razlichnykh vyazhshchikh veshchestv. Sbornik nauch. Rabot po vyazhushchim materialam. m. 1949, s. 153-63.

SO: LETOPIS' NO. 35, 1949

VOL'FSON, S. L.

(2)

Chemical Abstracts
Vol. 48 No. 5
Mar. 10, 1954
Cement, Concrete, and Other Building Materials

Intensifying the firing of clinker. N. A. Toropov and S. L. Vol'fson. *Tsement* 19, No. 4, 12–16(1953).—Two portland-cement mixts. differing only in the content of di- and tri-Ca silicates were fired at 1200 and 1300° with 0.05, 0.025, and 0.012 g.-equivs. of fluorides and fluosilicates (superphosphate by-products) per 100 g. of the cement mixt. The fluosilicates and fluorides proved more beneficial than fluorspar. The fluosilicates were, in turn, more effective than the fluorides of the corresponding cations. Optimum dosage of fluosilicate was 0.012 g.-equiv. Strength of the cement specimens was not lowered by these admixts. B. Z. Kamich

TOROPOV, N.A., professor; VOL'FSON, S.L., dotsent.

Intensification process of clinker firing. TSement no.4:12-16 Jl-Ag '53. (MLRA 6:8)
(Cement kilns)

VOLFSON, S. L.

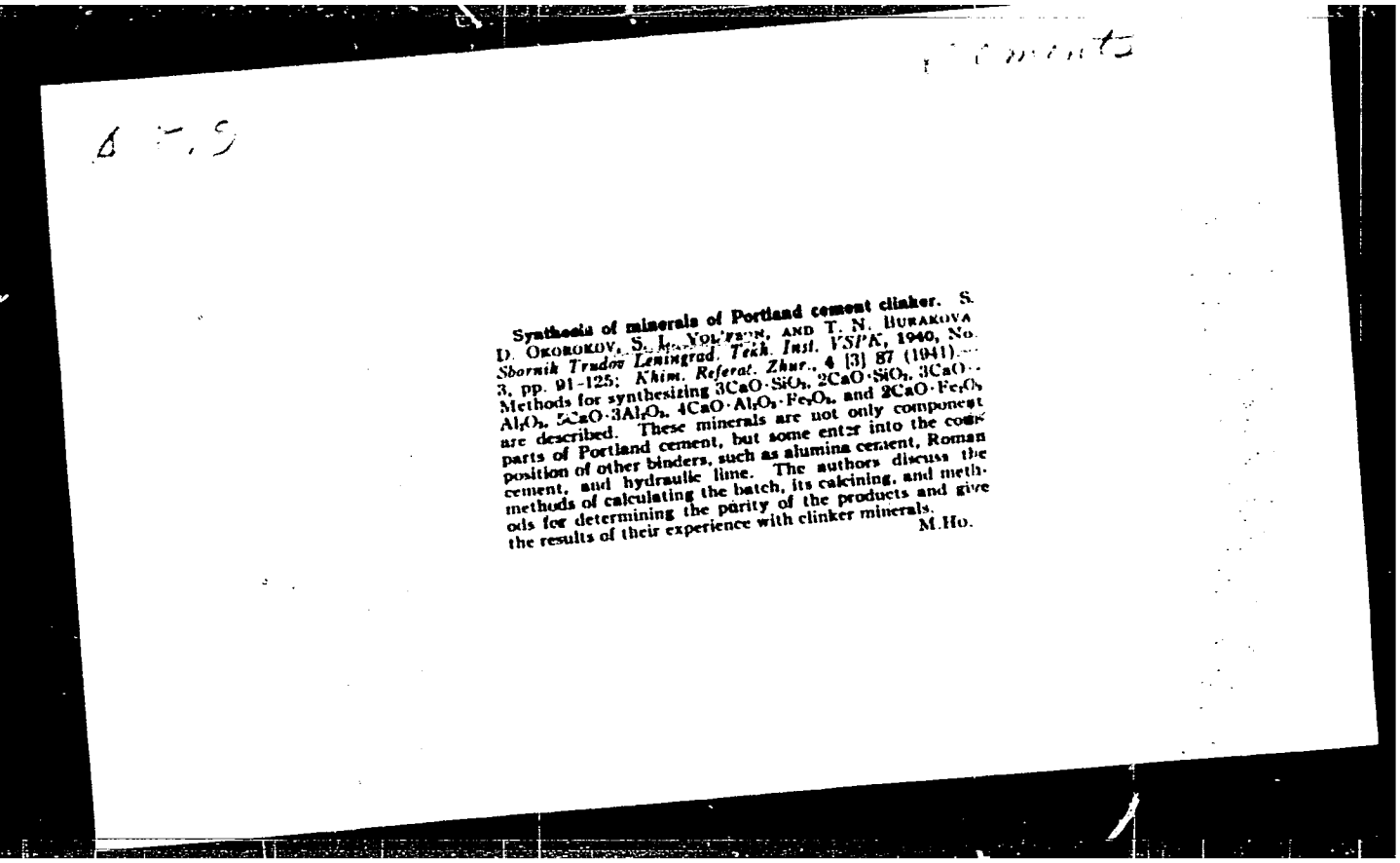
(2) 3 mx 26

B. T. R.
Vol. 3 No. 4
Apr. 1954
Ceramics and Concrete

4453* **Intensification of Calcination Process of the Clinker.** (Russian.) N. A. Torópov and S. L. Volfson. *Tsement*, v. 19, no. 4, July-Aug. 1953, p. 12-16.
Study of action of fluorine and silicon fluoride salts on clinker formation of Portland cement demonstrated their effectiveness. Tables.

Journal of the American Ceramic Society
Vol. 37 No. 4
Apr. 1, 1954
Cements, Limes, and Plastics

Intensifying the firing of clinker. N. A. Toropov and S. L. Vol'fson. *Tsement*, 19 [4] 12–16 (1953).—Two Portland cement mixtures differing only in their content of dicalcium and tricalcium silicates were fired at 1200° and 1300°C. with 0.012, 0.025, and 0.05 gm. equiv. of fluorides and fluosilicates (superphosphate by-products) per 100 gm. of cement mixture. The salts proved more effective than fluorspar. The fluosilicates were, in turn, more effective than the fluorides of the corresponding cations. The optimum dosage of fluosilicate was 0.012 gm. equiv. The strength of cement specimens was not reduced by these admixtures. B.Z.K.



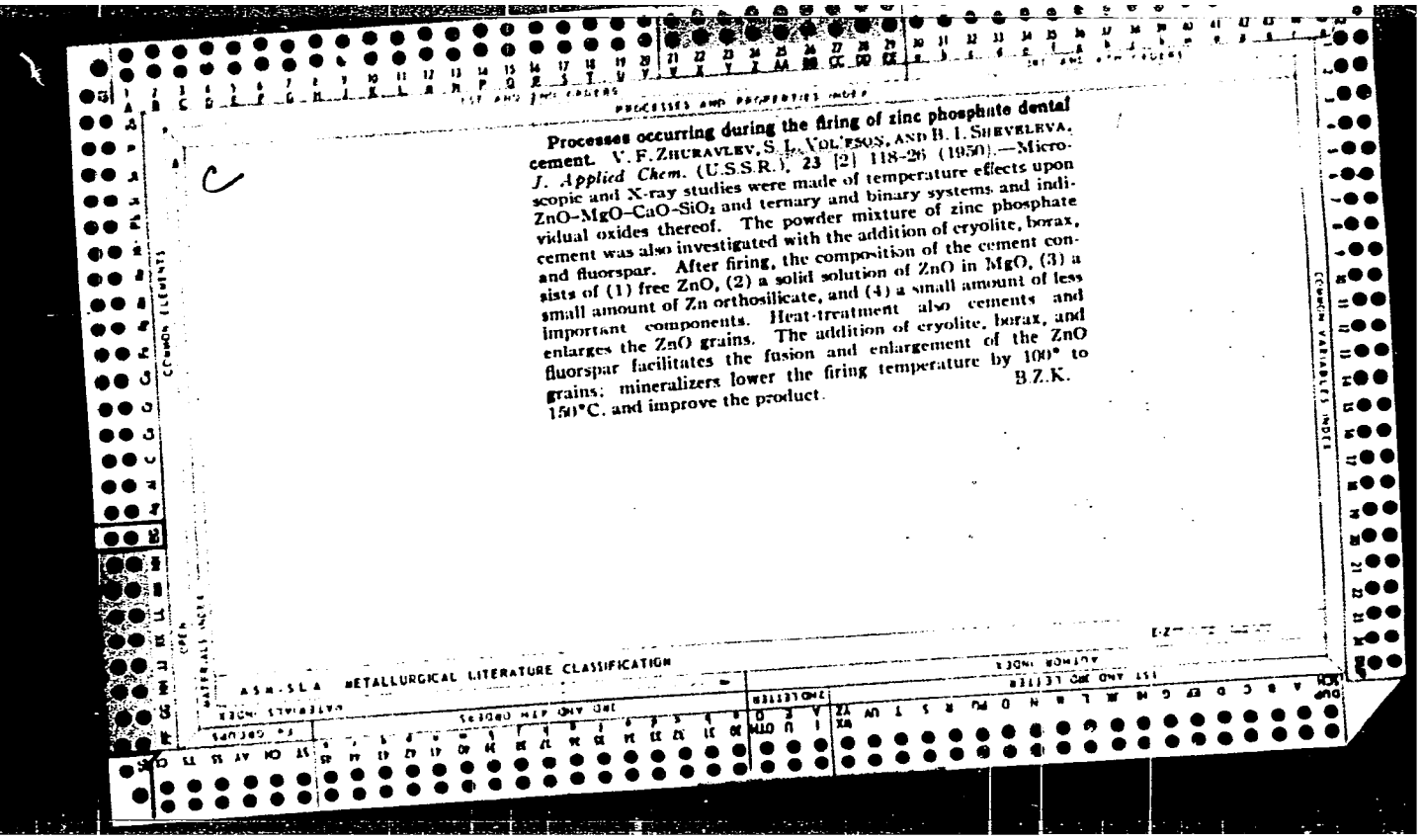
Synthesis of minerals of Portland cement clinker. S. D. Okorokov, S. K. Volchkov, and T. N. Burakova *Sbornik Trudov Leningrad. Tekh. Inst. VSPK*, 1940, No. 3, pp. 91–125; *Khim. Referat. Zhur.*, 4 [3] 87 (1941).—Methods for synthesizing $3CaO \cdot SiO_2$, $2CaO \cdot SiO_2$, $3CaO \cdot Al_2O_3$, $5CaO \cdot 3Al_2O_3$, $4CaO \cdot Al_2O_3 \cdot Fe_2O_3$, and $2CaO \cdot Fe_2O_3$ are described. These minerals are not only component parts of Portland cement, but some enter into the composition of other binders, such as alumina cement, Roman cement, and hydraulic lime. The authors discuss the methods of calculating the batch, its calcining, and methods for determining the purity of the products and give the results of their experience with clinker minerals.

M.Ho.

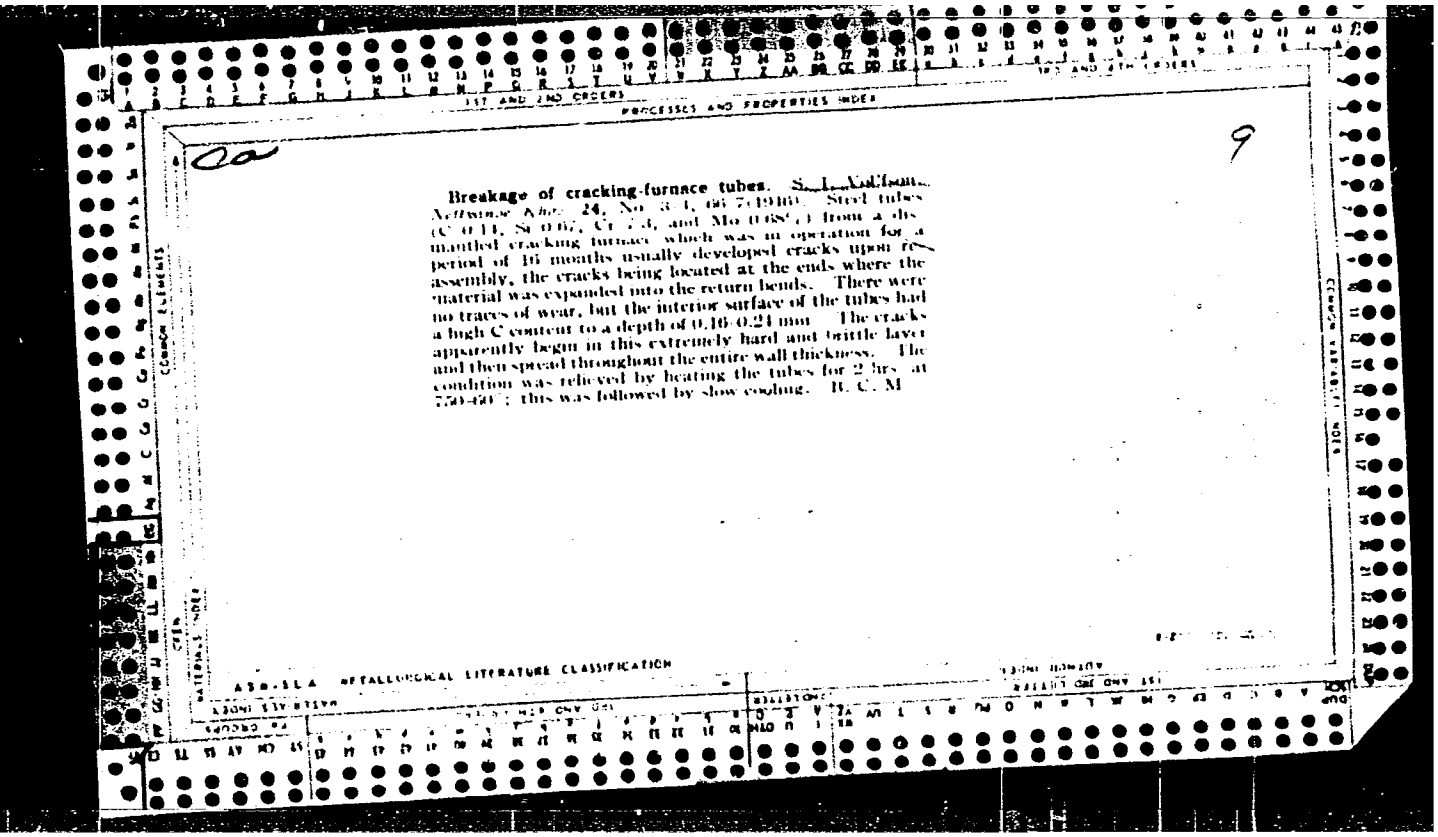
VOLFSON, S.L.,
V. A. KIND, Tsement 5, No. 7, 12-17 (1937)

VOLFSON, S.L.,
V. A. KIND, Tsement 5, No. 2, 22-32 (1937)

VOLFSON, S.L.,
V. A. KIND, Tsement 5, No. 8, 10-14 (1937)



Processes occurring during the firing of zinc phosphate dental cement. V. F. Zhuravlev, S. L. Vol'fson, and B. I. Shevleva. *J. Applied Chem.* (U.S.S.R.), 23 [2] 118–26 (1950).—Microscopic and X-ray studies were made of temperature effects upon ZnO–MgO–CaO–SiO_2 and ternary and binary systems and individual oxides thereof. The powder mixture of zinc phosphate cement was also investigated with the addition of cryolite, borax, and fluorspar. After firing, the composition of the cement consists of (1) free ZnO, (2) a solid solution of ZnO in MgO, (3) a small amount of Zn orthosilicate, and (4) a small amount of less important components. Heat-treatment also cements and enlarges the ZnO grains. The addition of cryolite, borax, and fluorspar facilitates the fusion and enlargement of the ZnO grains; mineralizers lower the firing temperature by 100° to 150°C. and improve the product. B.Z.K.

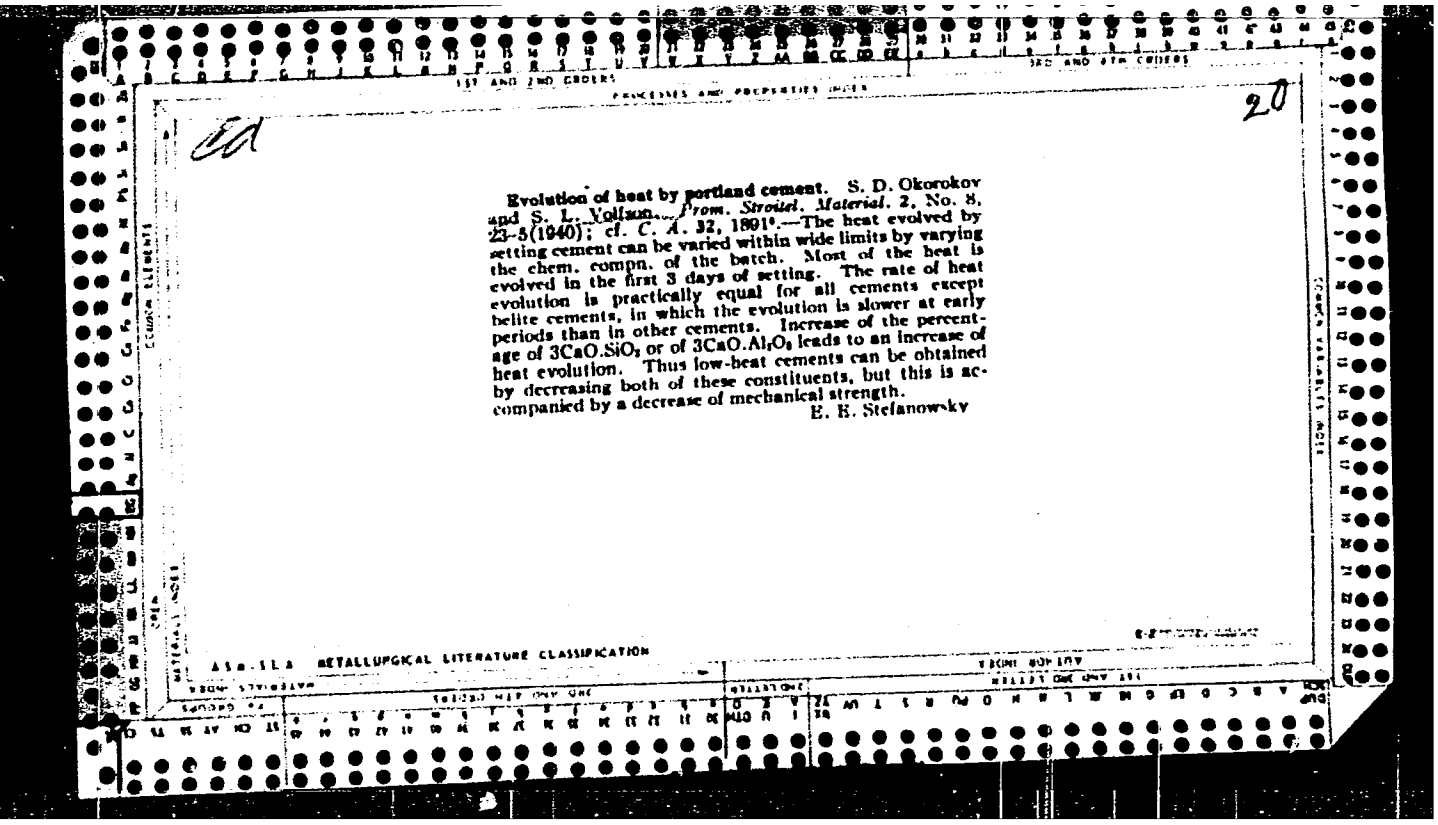


PROCESSES AND PROPERTIES INDEX

9

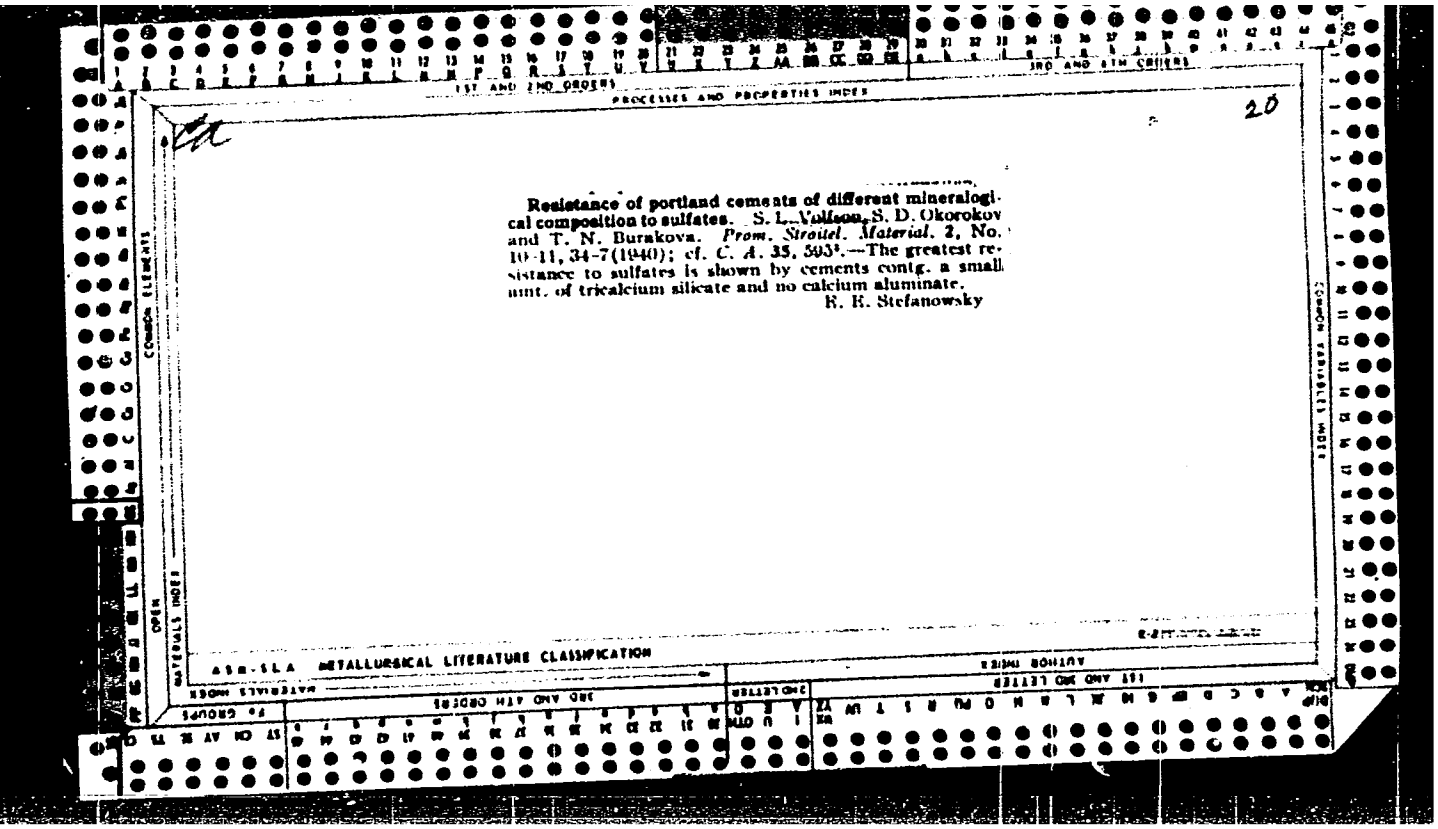
Breakage of cracking-furnace tubes. S. I. Vol'fson. Neftyanoe Khoz., 24, No. 3-4, 66-7 (1946). Steel tubes (C 0.11, Si 0.07, Cr 7.3, and Mo 0.65%) from a tubular cracking furnace which was in operation for a period of 16 months usually developed cracks upon reassembly, the cracks being located at the ends where the material was expanded into the return bends. There were no traces of wear, but the interior surface of the tubes had a high C content to a depth of 0.18-0.24 mm. The cracks apparently begin in this extremely hard and brittle layer and then spread throughout the entire wall thickness. The condition was relieved by heating the tubes for 2 hrs. at 750-60°; this was followed by slow cooling. B. C. M

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Evolution of heat by portland cement. S. D. Okorokov and S. L. Volfsun. *Trans. Stroitel. Material.* 2, No. 8, 23–5(1940); cf. *C. A.* 32, 1891⁹.—The heat evolved by setting cement can be varied within wide limits by varying the chem. compn. of the batch. Most of the heat is evolved in the first 3 days of setting. The rate of heat evolution is practically equal for all cements except belite cements, in which the evolution is slower at early periods than in other cements. Increase of the percentage of $3CaO.SiO_2$ or of $3CaO.Al_2O_3$ leads to an increase of heat evolution. Thus low-heat cements can be obtained by decreasing both of these constituents, but this is accompanied by a decrease of mechanical strength.

E. E. Stefanowsky

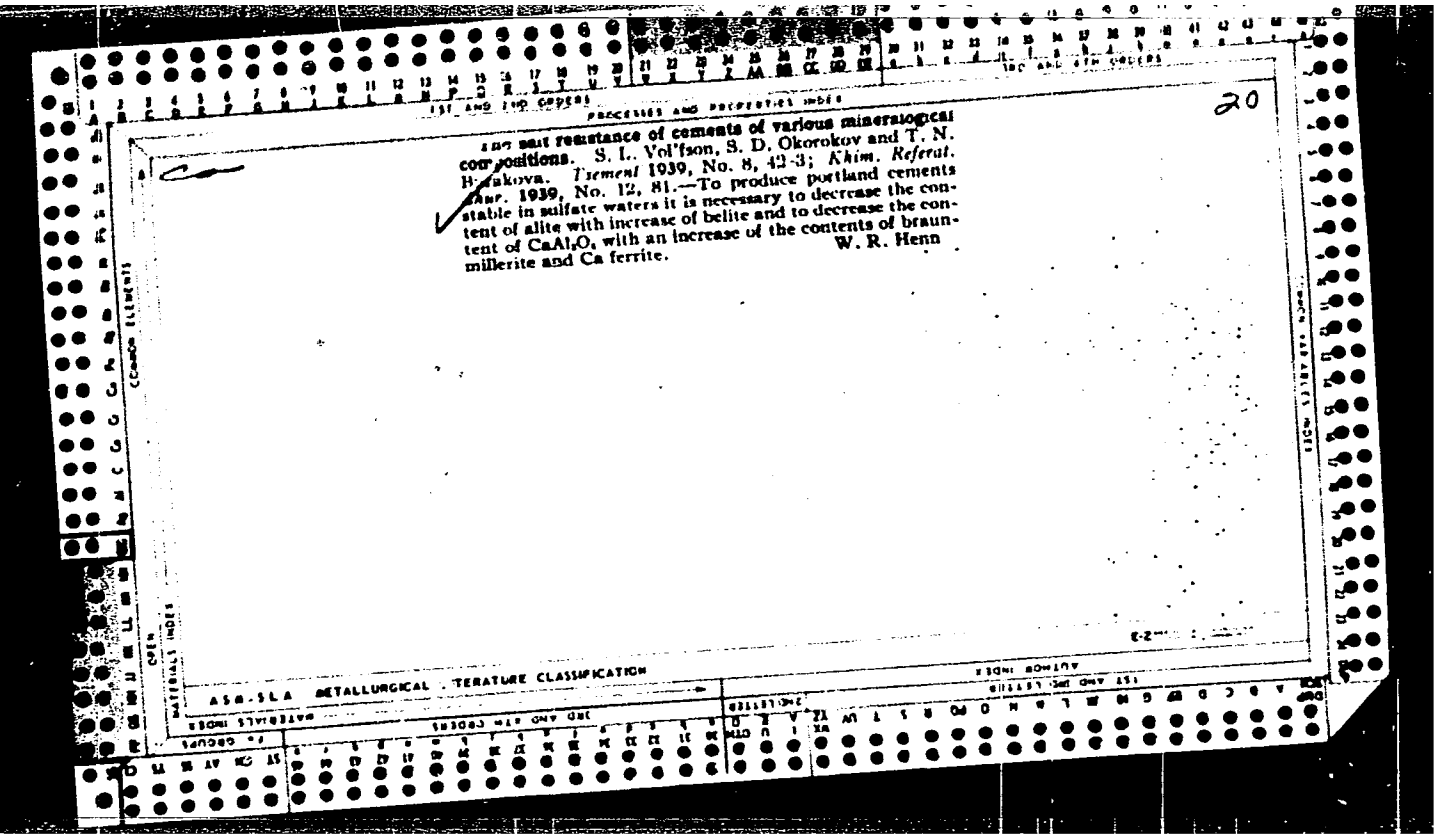


PROCESSES AND PROPERTIES INDEX

20

Resistance of portland cements of different mineralogical composition to sulfates. S. L. Volfson, S. D. Okorokov and T. N. Burakova. *Prom. Stroitel. Material.* 2, No. 10-11, 34-7(1940); cf. *C. A.* 35, 595⁵.—The greatest resistance to sulfates is shown by cements contg. a small amt. of tricalcium silicate and no calcium aluminate.
R. E. Stefanowsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



and salt resistance of cements of various mineralogical compositions. S. L. Vol'fson, S. D. Okorokov and T. N. Bulakova. *Tsement* 1939, No. 8, 42-3; *Khim. Referat. Zhur.* 1939, No. 12, 81.—To produce portland cements stable in sulfate waters it is necessary to decrease the content of alite with increase of belite and to decrease the content of $CaAl_2O_4$ with an increase of the contents of brauntmillerite and Ca ferrite.

W. R. Henn

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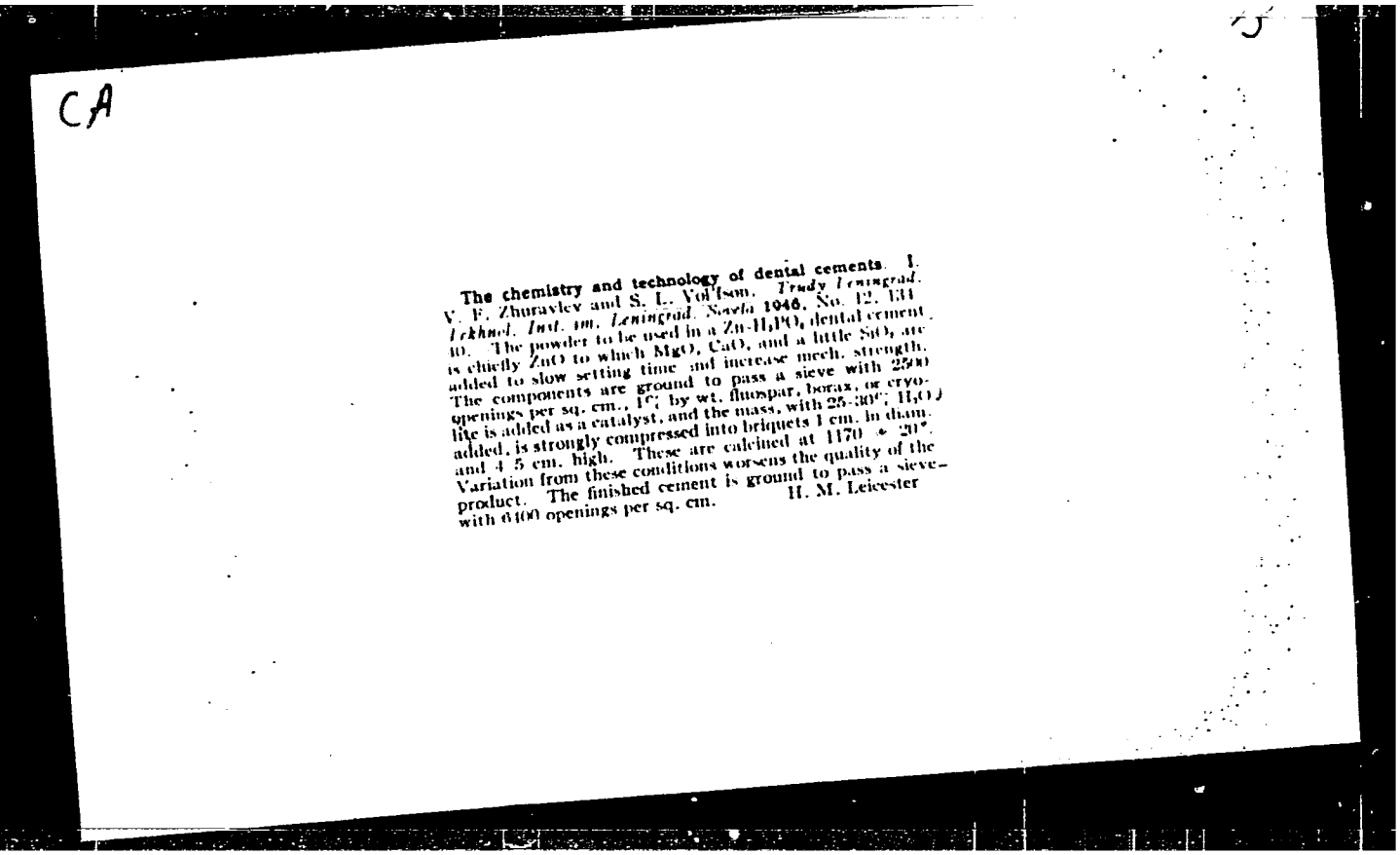
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

The chemistry and technology of dental cements. I. V. F. Zhuravlev and S. L. Volfson. *Trudy Leningrad. Tekhnol. Inst. im. Lensoveta* 1946, No. 12, 131-40. The powder to be used in a Zn-H_3PO_4 dental cement is chiefly ZnO to which MgO, CaO, and a little SiO$_2$ are added to slow setting time and increase mech. strength. The components are ground to pass a sieve with 2500 openings per sq. cm., 1% by wt. fluospar, borax, or cryolite is added as a catalyst, and the mass, with 25–30% H_2O added, is strongly compressed into briquets 1 cm. in diam. and 4–5 cm. high. These are calcined at 1170 ± 20°. Variation from these conditions worsens the quality of the product. The finished cement is ground to pass a sieve with 6400 openings per sq. cm. H. M. Leicester

11(4) PHASE I BOOK EXPLOITATION SOV/2075

Akademiya nauk SSSR. Bashkirskiy filial, Ufa

Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh; [materialy III nauchnoy sessii] (Chemistry of Sulphur Organic Compounds Contained in Petroleum and Petroleum Products; [Papers of the Third Scientific Session]) Moscow, Izd-vo AN SSSR, 1959. 376 p. 2,000 copies printed. Errata slip inserted.

Editorial Board: R.D. Obolentsev (Resp. Ed.) Doctor of Chemical Sciences; G.D. Gal'pern, Doctor of Chemical Sciences; Ya. B. Chertkov, Doctor of Technical Sciences; V.V. Panov, Candidate of Technical Sciences; and V.P. Rozhdestvenskiy, Candidate of Chemical Sciences; Ed. of Publishing House: I.I. Brusov; Tech. Ed.: T.P. Polenova.

PURPOSE: This book is intended for chemists, chemical engineers, and technicians specializing in the chemistry of petroleum.

COVERAGE: The book is a collection of papers presented at the Third Scientific Session on the Chemistry of Organic Sulfur- and Nitrogen Compounds Contained in Petroleum and Petroleum Products. The scientific session was held in Ufa, June 3-8, 1957. The book consists of six sections: 1) Synthesis, characterization, and analysis of organic sulfur compounds; 2) Separation and composition of organic sulfur compounds contained in petroleum and petroleum products; 3) Transformation of organic sulfur compounds by thermal catalysis; 4) Corrosive properties of and tar formation in sulfur-containing petroleum and petroleum products; 5) Uses of organic sulfur compounds and hydrogen sulfide; 6) Physiological properties of organic sulfur compounds. No personalities are mentioned. There are 315 references, of which 179 are Soviet, 118 English, 5 French, 12 German, and 1 Czech.

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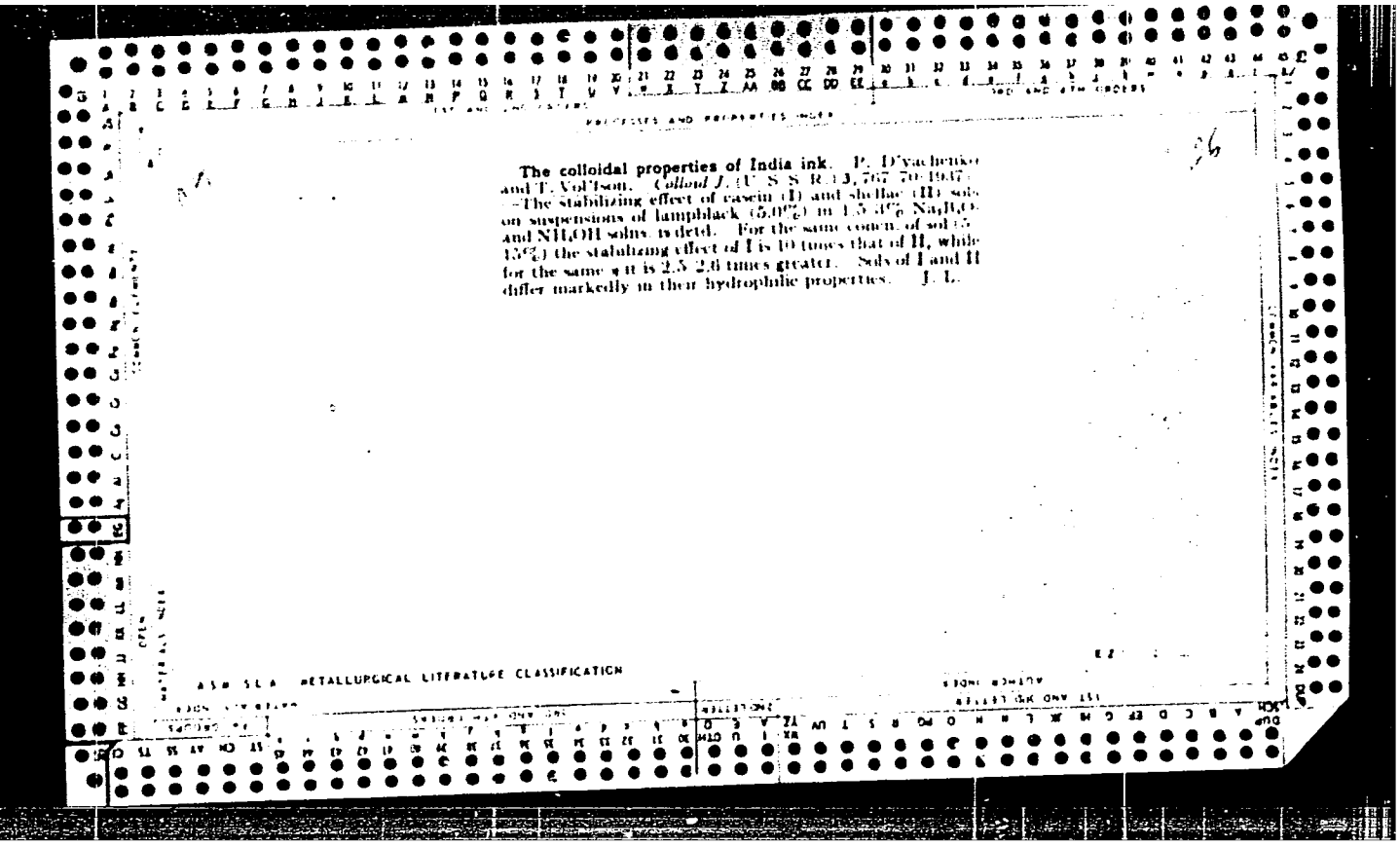
Chemistry of Sulphur Organic Compounds (Cont.) SOV/2075

PART IV. CORROSIVE ACTIVITY AND TAR FORMATION OF SULFUR-CONTAINING PETROLEUM AND PETROLEUM PRODUCTS

Card 8/10

VOL'FSON, Samuil Vol'fson; RYABOV, P.N., ved. red.; STAROSTINA, L.D., tekhn. red.

[Air and steam method of removing coke from petroleum refinery furnaces] Parovozdushnyi sposob udaleniia koksa iz pechei neftepererabatyvaiushchikh zavodov. Moskva, Gostoptekhizdat, 1963. 51 p. (MIRA 16:9)
(Petroleum refineries--Equipment and supplies)
(Coke)



The colloidal properties of India ink. P. D'yachenko and T. Vol'fson. *Colloid J. (U.S.S.R.)* 3, 767-70 (1937).—The stabilizing effect of casein (I) and shellac (II) sols on suspensions of lampblack (5.0%) in 1.5 4% $Na_2B_4O_7$ and NH_4OH solns. is detd. For the same concn. of sol (5-15%) the stabilizing effect of I is 10 times that of II, while for the same wt it is 2.5-2.6 times greater. Sols of I and II differ markedly in their hydrophilic properties. J. L.

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

SHKOLYAR, T. T., dotsent; VOL'FSON, T. I., kand. med. nauk; LAMPUSOVA, A. I., vrach

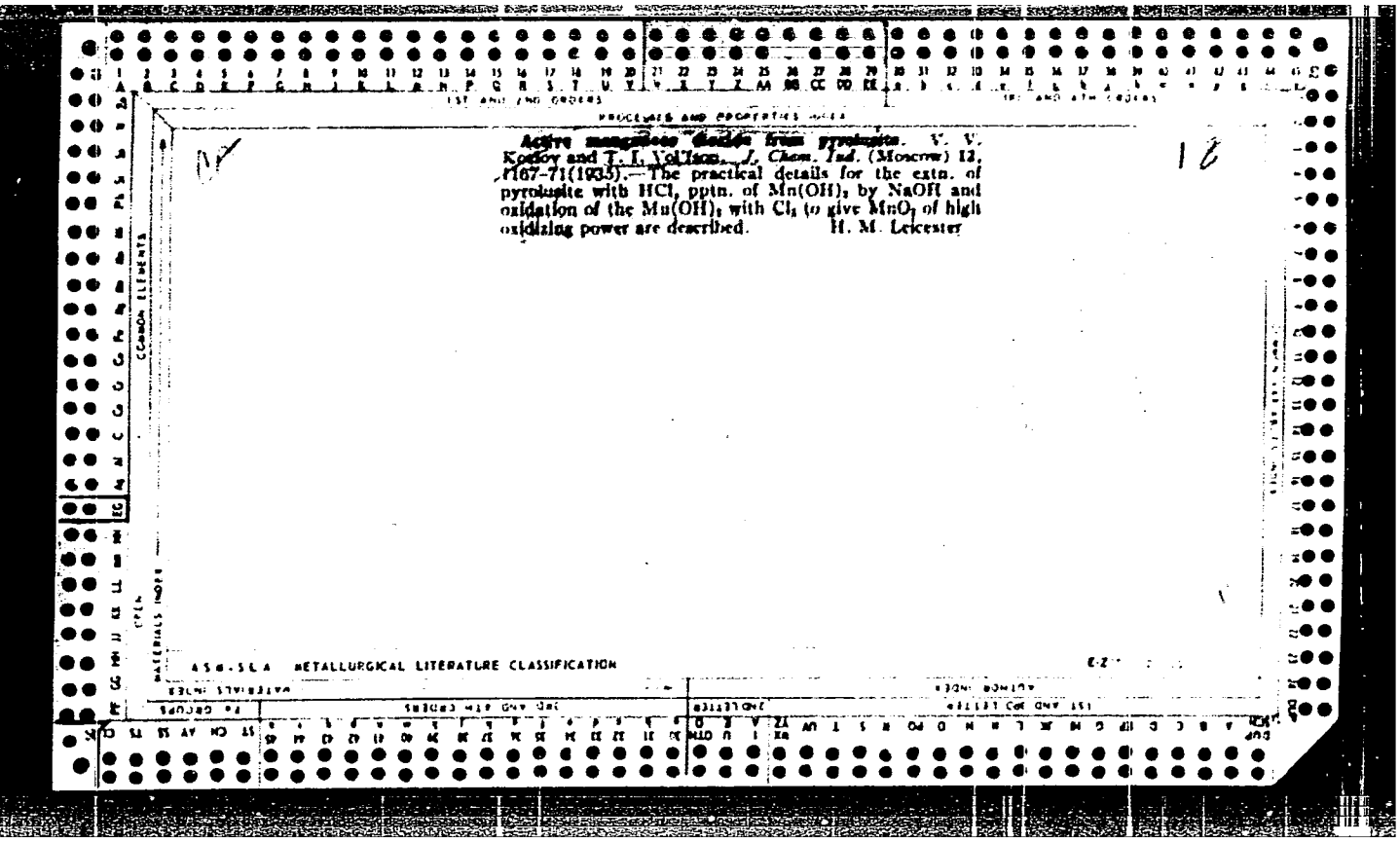
Comparative data on the calcium, phosphorus and potassium content in the blood serum in amphodontosis and caries. Trudy KGMI no.2: 45-51 '60. (MIRA 15:7)

1. Iz kafedry terapevticheskoy stomatologii - zav. kafedroy dotsent T. T. Shkolyar.

(TEETH—DISEASES) (GUMS—DISEASES)

KOZLOV, V.V.; VOL'FSON, T.I.; KOZLOVA, N.A.; TUBYANSKAYA, G.S.

Naphthalene series. Part 25: Formation of sulfones by the action of chlorosulfonic acid on naphthalene. Zhur.ob.khim. 32 no.10:3440-3445 O '62. (MIRA 15:11)
(Sulfones) (Sulfonic acid) (Naphthalene)



Active manganese dioxide from pyrolusite. V. V. Kodov and T. I. Volkova. *J. Chem. Ind.* (Moscow) 12, 1167-71(1935).—The practical details for the extn. of pyrolusite with HCl, pptn. of $Mn(OH)_2$ by NaOH and oxidation of the $Mn(OH)_2$ with Cl_2 to give MnO_2 of high oxidizing power are described. H. M. Leicester

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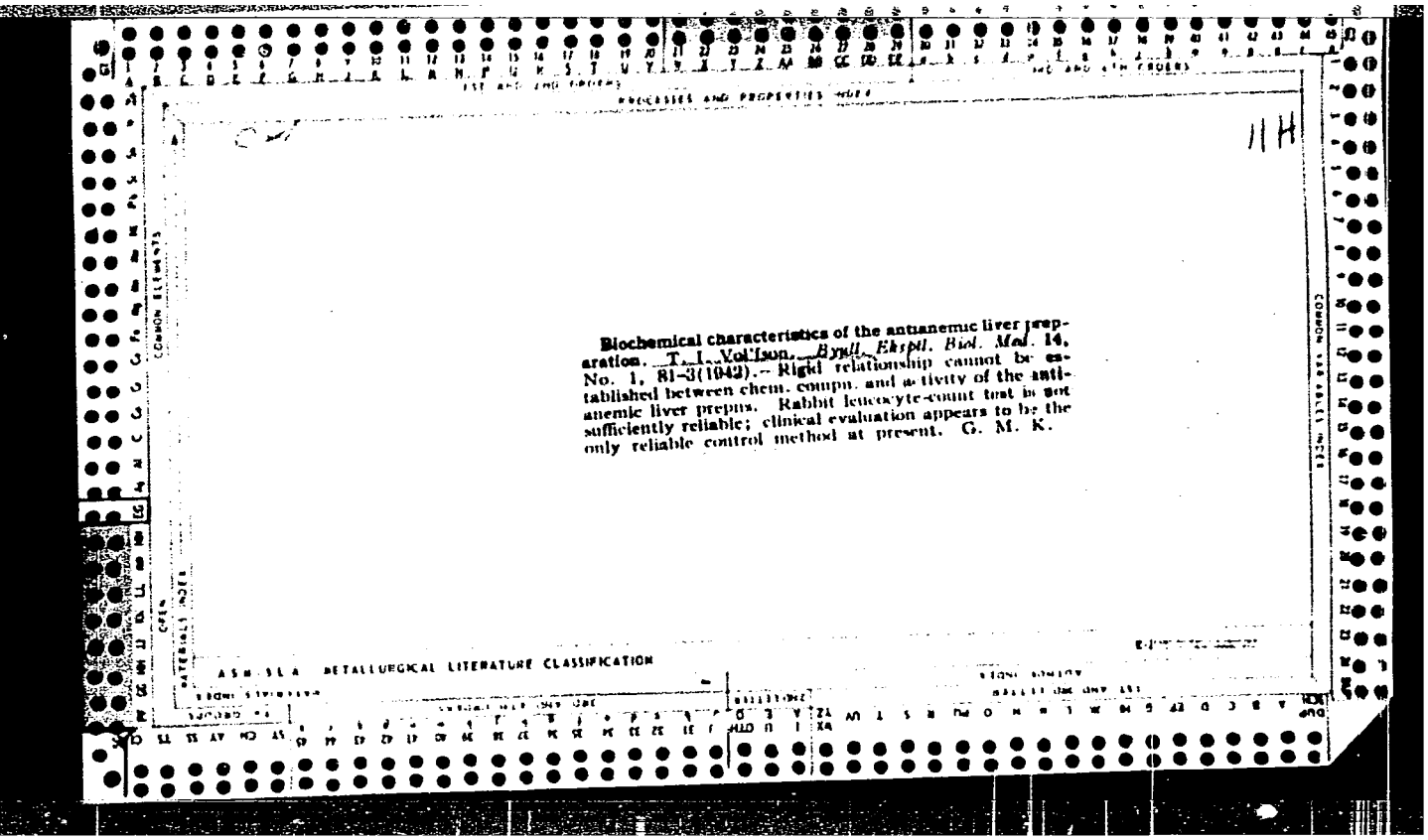
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Biochemical characteristics of the antianemic liver preparation. T. I. Vol'fson. *Byull. Eksptl. Biol. Med.* 14, No. 1, 81-3(1942).— Rigid relationship cannot be established between chem. compn. and activity of the antianemic liver prepns. Rabbit leucocyte-count test is not sufficiently reliable; clinical evaluation appears to be the only reliable control method at present. G. M. K.

11 2

Action of fibrinogenase on the protein fraction of blood plasma. T. I. Vol'fson. *Biokhimiya* 14, 409-12(1949); cf. C.A. 43, 92105.—The disappearance of fibrinogen from the blood plasma of normal people after the addn. of fibrinogenase (contained in the blood of people who died suddenly) is not due to proteolysis. The fibrinogen is transformed by the action of fibrinogenase into another protein of the globulin type, which is not coagulated by thrombin. The amt. of globulin in the plasma of people who died suddenly is equal to the sum of the fibrinogen and globulin in the plasma of live people. An increase in the globulin fraction of normal citrated plasma is obtained after the addn. of fibrinogenase from lung exts. H. P.

VOL'FSON, T.I.; KRAYZMER, K.F.

Activation of fibrinogenase in the blood of patients in the dental surgery clinic. Stomatologiia no.1:31-33 Ja-F '54. (MLRA 7:1)

1. Iz kafedry biologicheskoy khimii (zaveduyushchiy - professor V.S.Il'in) i kafedry khirurgicheskoy stomatologii (zaveduyushchiy chlen-korrespondent Akademii meditsinskikh nauk SSSR professor A.A.Limberg) Leningradskogo meditsinskogo stomatologicheskogo instituta (direktor - professor R.I.Gavrilov).
(Hemorrhage) (Blood--Coagulation) (Enzymes)

VOL'FSON, T.I.

Activation of fibrinogenase in the blood of cats which were killed suddenly. Biul.eksp.biol. i med. 37 no.5:31-33 My '54. (MLRA 7:7)

1. Iz kafedry biologicheskoy khimii (zav. prof. V.S.Il'in) Leningradskogo meditsinskogo stomatologicheskogo instituta (dir. prof. R.I.Gavrilov)

(PROTEASES,
*fibrinogenase, activation in blood of cats killed rapidly)
(BLOOD,
*fibrinogenase, activation in blood of cats killed rapidly)
(DEATH,
*activation of fibrinogenase in blood of cats killed rapidly)

VOL'FSON, T.I.

Mechanism of action of fibrinogenase. Trudy Vses. ob-va fiziol., biokhim. i farm. 3:113-114 '56 (MLRA 10:4)

1. Kafedra biologicheskoy khimii Leningradskogo meditsinskogo stomatologicheskogo instituta; zaveduyushchiy kafedroy professor V.S. Il'in. Leningrad.
(FIBRINOGENASE)

VOL'FSON, T.I.

IL'IN, V.S.; VOL'FSON, T.I.; CHAPLYGINA, Z.A.; KRAYZMER, K.F.

Effect of the nervous system on the activity of blood fibrinogenase. Trudy Vses. ob-va fiziol., biokhim. i farm. 3:117-118 '56 (MLRA 10:4)

1. Kafedra biologicheskoy khimii Leningradskogo meditsinskogo stomatologicheskogo instituta; zaveduyushchiy kafedroy professor V.S. Il'in. Leningrad.
(FIBRINOGENASE) (NERVOUS SYSTEM)

MANOYLOV, S.Ye; VOL'FSON, T.I.

Treatment of slowly healing wounds with concentrated preparations of vitamin A, carotene and stickleback oil combined with penicillin. Khirurgiia 32 no.7:74-75 Jl '56. (MLRA 9:11)

1. Iz kafedry biokhimii (zav. - prof. S.Ye.Manoylov) i kafedry khirurgii (zav. - chlen-korrespondent Akademii meditsinskikh nauk SSSR prof. A.I.Filatov) Leningradskogo meditsinskogo stomatologicheskogo instituta (dir. - prof. R.I.Gavrilov)

(WOUNDS AND INJURIES, ther.
carotene, vitamin A, stickleback oil & penicillin)
(VITAMIN A, ther. use
wds., with stickleback oil, penicillin & carotene)
(FISH LIVER OILS, ther. use
stickleback oil in wds., with vitamin A, penicillin & carotene)
(PENICILLIN, ther. use
wds., with stickleback oil, vitamin A & carotene)

VOL'FSON, T.I.; GOLIKOV, A.P.; MIKHUSHKIN, M.K.

Effect of corn oil on lipoid metabolism and the development of atherosclerosis. Kardiologiia 1 no.5:29-34'61 (MIRA 17:4)

CHERVYAKOVSKIY, N.Ya.; VOL'FSON, T.I.

Hyaluronidase activity in the blood and urine in cardiac edema. Kardiologiia no.3:81 '65. (MIRA 18:10)

1. Kafedra voyenno-morskoy i gospital'noy terapii (nachal'nik - prof. Z.M.Volynskiy) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova, Leningrad.

VOL'FSON, T.I.; GOLIKOV, A.P.

Diagnostic value of determining sialic acids in slowly developing forms of rheumatic fever. Lab. delo 10 no.4:206-208 '64. (MIRA 17:5)

1. Kafedra voyenno-morskoy i gospital'noy terapii (nachal'nik - prof.Z.M.Volynskiy) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova, Leningrad.

KOZLOV, V. V.; VOL'FSON, T. I.; IODKO, M. O.; KOZLOVA, N. A.; TUBYANSKAYA, G. S.

Naphthalene series. Part 26: Conversions of monosulfonic acids of naphthalene to dinaphthyl sulfones. Zhur. ob. khim. 32 no.12:4074-4076 D '62. (MIRA 16:1)

(Naphthalenesulfonic acid) (Sulfone)